

Hardware

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1 HiPath 4000 V2.0

1.1 AMO DBC

- For migration of existing systems



Overview HiPath 4000 V2.0

Overview HiPath 4000 V2.0						
			S up to 4000 stations M up to 10000 stations L up to 12000 stations			
Architec- ture	Arch- type	Title	V	Proces- sor	Memory minimum with UW7	Usage
4300	01	80CMX	S	DPC5P	256 MB	CUST / LAB
4300	02	80CXE	S	DSCXP	256 MB	CUST / LAB
4500	02	600ECX-MO	M	DPC5P	256 MB	CUST / LAB
4500	05	600ECX-DUAL	M	DPC5P	128/128 MB	CUST / LAB
4500	06	600ECX-DUAL	L	DPC5P	256/256 MB	CUST / LAB

- New Hardware



Overview HiPath 4000 V2.0						
			S up to 4000 stations M up to 10000 stations L up to 12000 stations			
Architec- ture	Arch- type	Title	V	Proces- sor	Memory minimum with UW7	Usage
4000	01	CPI - Mono	S	DSCXL	512 MB	CUST / LAB
4000	03	CPI -Mono	L	DSCXL	512 MB	CUST / LAB
4000	05	CPI - SWU	M	DSCXL	256 MB	CUST / LAB
		CPI - ADS		DSCXL	256 MB	
4000	06	CPI - SWU	L	DSCXL	256 MB	CUST / LAB
		CPI - ADS		DSCXL	256 MB	

1.2 New Control unit in the HiPath 4000 V2.0

There is a new Hardware-platform for the HiPath 4000 V2.0 in addition to the existing Hardware. The new hardware platform architecture is titled HiPath 4000. The HiPath versions utilising the Atlantic platform continue to use the names Hipath 4300 and 4500.

1.2.1 cPCI - Control shelf

The cPCI shelf (Compact Shelf Peripheral Component Interconnect) is the base cabinet of the HiPath 4000 system and is available in two configurations (Duplex and Simplex Mono = basic configuration).

The cPCI shelf provides switching unit (SWU) and Administration and Data Processor (ADP) functions.

- The CCA/CCB provides:
 - A common control unit that starts and controls the call processing functions and features of the system
 - A switching network that controls the voice data highways that carry information through the system
 - A service unit that provides ringing, tones, conference call switching, dual-tone multi frequency (DTMF) button signals, and public network dial tones for LTU boards
- The ADP
 - places the system into service
 - provides access to system administration, maintenance, and configuration management operations (Direct AMO Dialog, UBA, HSD or RDS)
 - provides a local maintenance terminal interface
 - provides various administrative reporting and security applications

The cPCI shelf provides slots for:

- cPCI control shelf
(S30807-U6625-X1)
- Up to three DSCXL processor boards (ADP, CC-A and CC-B)
(S30810-Q2311-X)
- One drive holder for the hard disk and MO disk drive
(S30810-K2310-X)

- Two power supplies (ACPCI or DCPCI)
(S30122-K7682-M1) or (S30122-K7682-C1)
(S30122-K7683-M1) or (S30122-K7683-C1)
- One SF2X8 LAN switch board
(S30810-Q2309-X)
- Two slots for fans
- One connector module (at the back of the shelf) for peripheral expansion boxes RTM (Rear Transition Module)
(S30810-Q2312-X)
- One control board (at the back of the shelf) MCM (Management and Control Module)
(S30810-Q2313-X)

1.2.1.1 Versions of configuration

1. Simplex - Mono

cPCI-shelf, front view:



● *optional*

SLOT					Blind plates opt.	
6	F A N	SF2X8 ●		F A N		
5					C39165-A7070-B20	
4		MOD	HD			
3						
2					C39165-A7070-B20	
1		DSCXL (ADS and CC)				
Power supply		ACPCI or DCPCI	ACPCI or DCPCI ●		C39165-A7070-B22	

cPCI-shelf, rear view:



SLOT				Blind plates opt.
6	F A N		F A N	C39165-A7070-B21
5				
4				C39165-A7070-B20
3				C39165-A7070-B20
2				
1		RTM		
MCM		MCM		

Modules:

- RTM (Rear Transision Module) for LTU connections
- MCM (Management and Control Module) for the alarm contacts and ALUM



2. Duplex

- To extend the basic configuration (Simplex Mono) of the cPCI-shelf , the control shelf can be extended by the following modules on the front side:
 - **2x DSCXL:** S30810-Q2311-X
 - **1x SF2X8:** S30810-Q2309-X optional
- Concurrently the shelf is extended by the following module on the back side:
 - **1x RTM:** S30810-Q2312-x

cPCI-shelf, front view:



● **optional**

SLOT					Blind plates opt.	
6	F A N	SF2X8		F A N		
5		DSCXL (SWU B)				
4		MOD	HD			
3						
2		DSCXL (SWU A)				
1		DSCXL (ADS)				
Power supply		ACPCI or DCPCI	ACPCI or DCPCI		C39165-A7070-B22	

cPCI-shelf, rear view:



SLOT				Blind plates opt.
6	F A N	RTM		
5				
4		RTM	F A N	C39165-A7070-B20
3				
2				
1				C39165-A7070-B20
MCM		MCM		

Modules:

- RTM (Rear Transision Module) for LTU connections
- MCM (Management and Control Module) for the alarm contacts and ALUM

1.2.2 AMO Usage

ADD-UCSU:UNIT=LTG,LTG=1,SIPARTNO="Q2312-X"; (RTM Board)

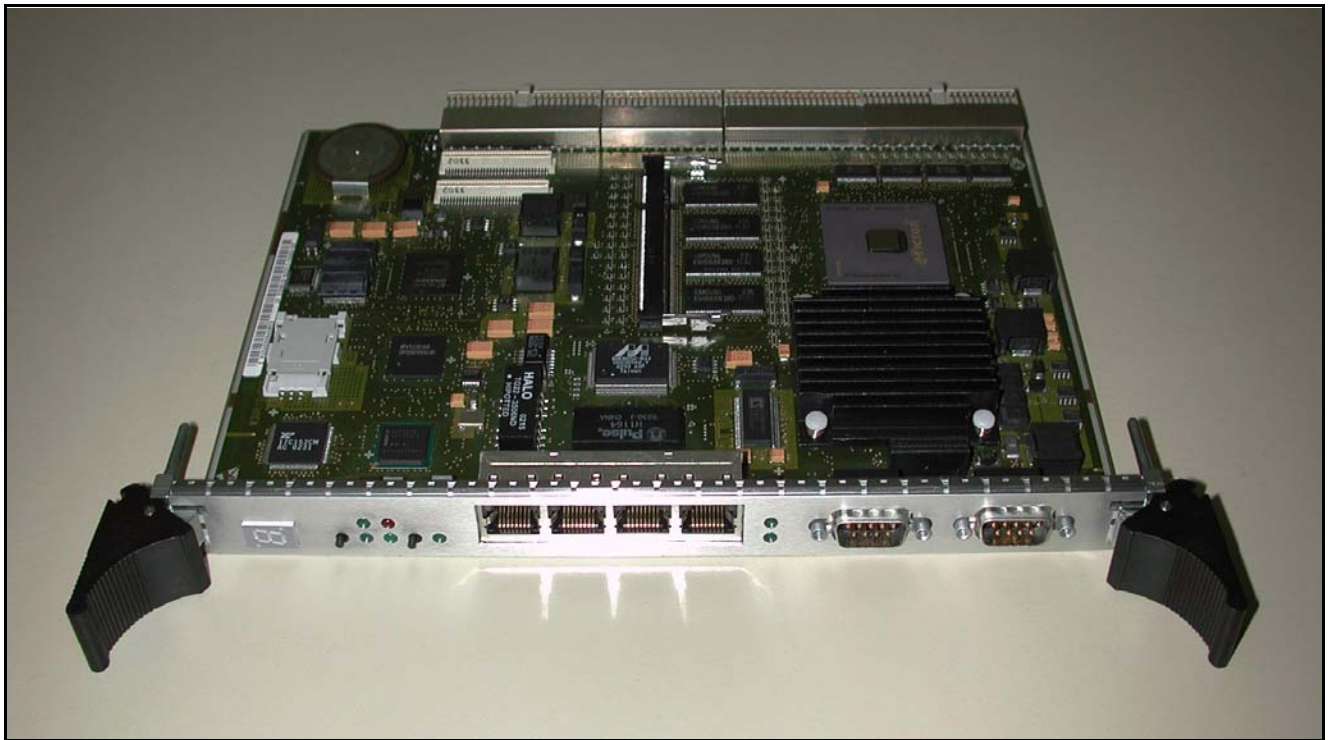
1.2.3 Control board DSCXL

The DSCXL (**D**ata and **S**witch Processor for **C**ompact**P**CI/**L**AN) is the central processor board. The board controls ADP processing (including controlling the CompactPCI buses in the back-plane) and is responsible for fundamental system control functions.



The board is hot swappable !!!

The Harddisk must be deactivated by AMO: DEACTIVATE-DSSM:UNIT=A1, CNO=1 (6); , if the ADP is to be unplugged.



Pentium III Processor

- 800 MHz Frequency.
- 133 MHz System bus Frequency.
- 512-Kbyte cache (on-die, full speed level two (L2) cache)
- Micro-FCBGA technology.
- Quad Quadword Wide (256-bit) cache data bus.
- 8-way cache associativity
- Max. 9.84 A power dissipation @ 1.15 V core voltage.
- Max. Junction Temperature $T_j=100^{\circ}\text{C}$.

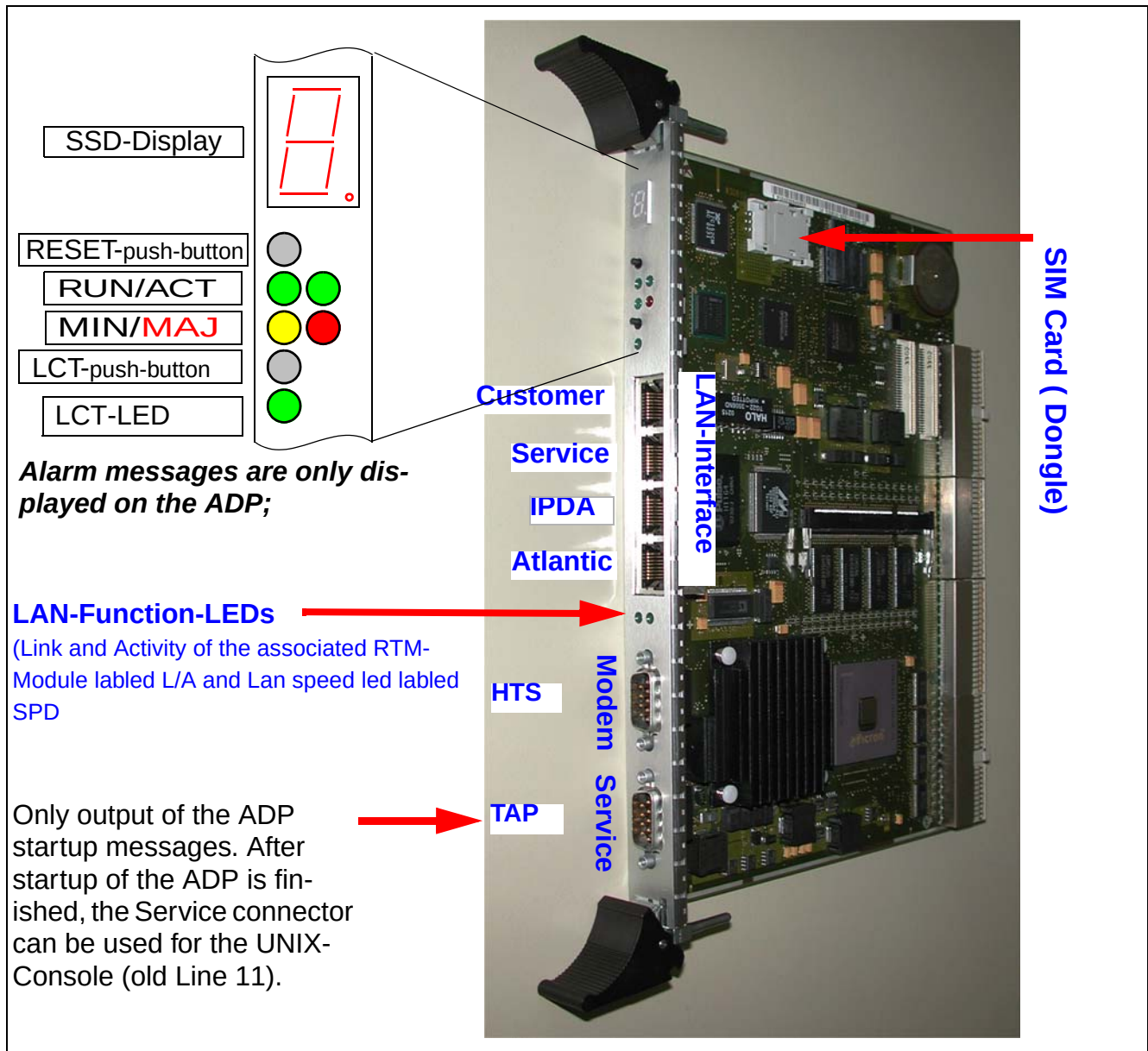
Hardware Version

- DSCXL:S30810-Q2311-X-*

LED and SSD Displays/Keys

The front side of the board features one SSD display, two keys, five LEDs for DSCXL status and two LEDs for the LAN interface to the RTM board with the following properties:

DSCXL displays	Properties
SSD display	Indicates the current status of the DSCXL
RUN LED green	CPU active
ACTIVE LED green	System status
LCT LED green	Loading from MO active
Minor Alarm LED yellow	Alarm LED
Major Alarm LED red	Alarm LED
Keys	
Reset	Manual reset for DSCXL
LCT	Starts loading from the MO instead of the HD



DSCXL board front panel

Reset/LCT key combinations:

You can start loading from the MO disk with the Reset and LCT keys.

- **Loading from MO disk:**
Press the LCT key briefly followed by the Reset key.

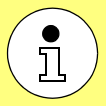
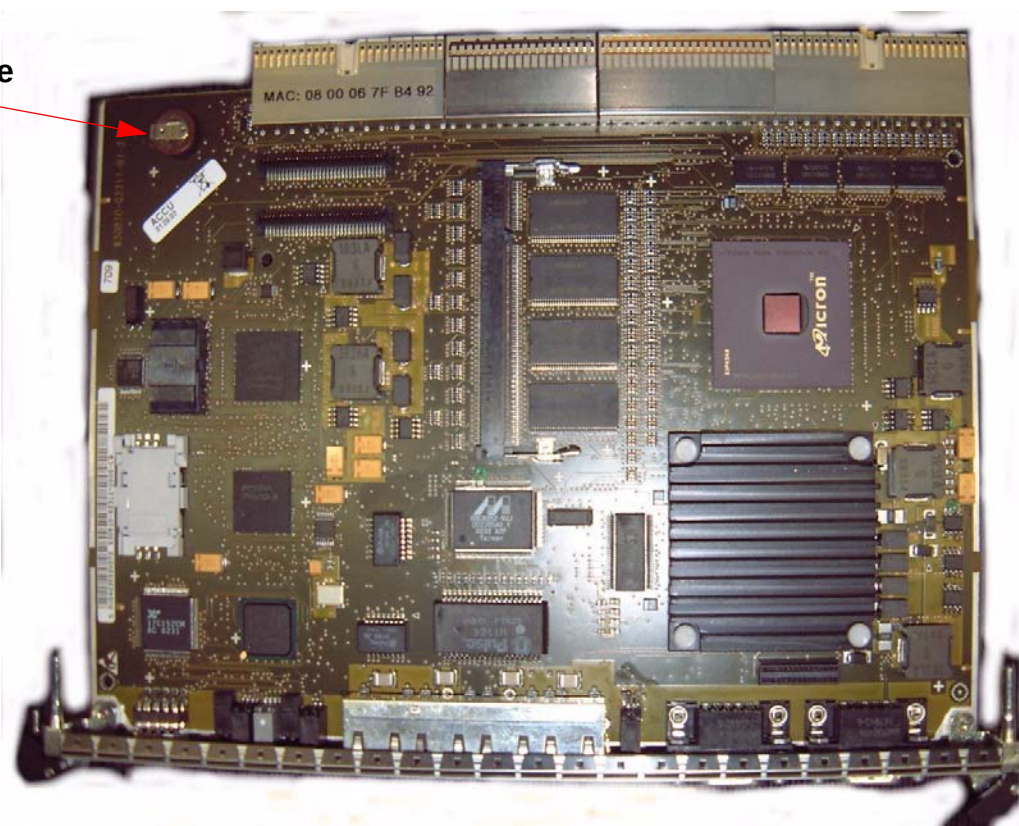
LAN displays	LED on	LED off	LED flashing
LINK/ACT green	Connection	No connection	Transferring or receiving signal
SPEED green	100 Mbps	10 Mbps	

LED-displays for Lan interface to the RTM board

The LEDs for the LAN interfaces on the front panel are integrated in the RJ45 sockets.

Jumper settings and rechargeable battery

Rechargeable battery



No jumper settings are necessary !

Interfaces

- Standard CompactPCI interface (C39334-Z7086-*) for the backplane
- 4 x RJ45 connectors for LAN interfaces
- 2 x V.24 9-pin SUB-D connector (service terminal/modem)

Standard CompactPCI interface

The DSCXL board can be implemented in all compatible CompactPCI 2.16 backplanes. Once implemented, the DSCXL takes over the control of the CompactPCI buses in the system slot. If the DSCXL is inserted in a peripheral slot, it cannot be connected to the CompactPCI bus. The special HiPath features can only be provided in connection with the HiPath backplane.

LAN access ports

- **“Customer”:**
 - Access port via UW7 to the ADP
 - Standard-IP-address: **192.1.2.5**
- **“Service”:**
 - Access port to the ADP (**192.0.2.3**) and UW7(Assistant) (**192.0.2.5**) via the Atlantic-LAN
- **“Atlantic”:**
 - Access port to the ADP, CC-A and CC-B via the Atlantic-LAN (**192.0.2.x**)
- **“IPDA”:**
 - Access Point (AP) - Signaling connection
 - IP addresses are set by the AMO SIPCO



Attention:

The LAN access ports **“SERVICE”** and **“ATLANTIC”** are blocked on the DSCXL board, if the board is used as a CC (Common Control) !!!

V.24 interfaces

These interfaces are provided for connecting terminals and modems (service/HTS).

PIN No.	Signal	I/O	Remark
1	DCD	I	
2	RXD	I	
3	TXD	O	
4	DTR	O	
5	0 V		Ground
6	DSR	I	
7	RTS	O	
8	CTS	I	
9	RI	I	

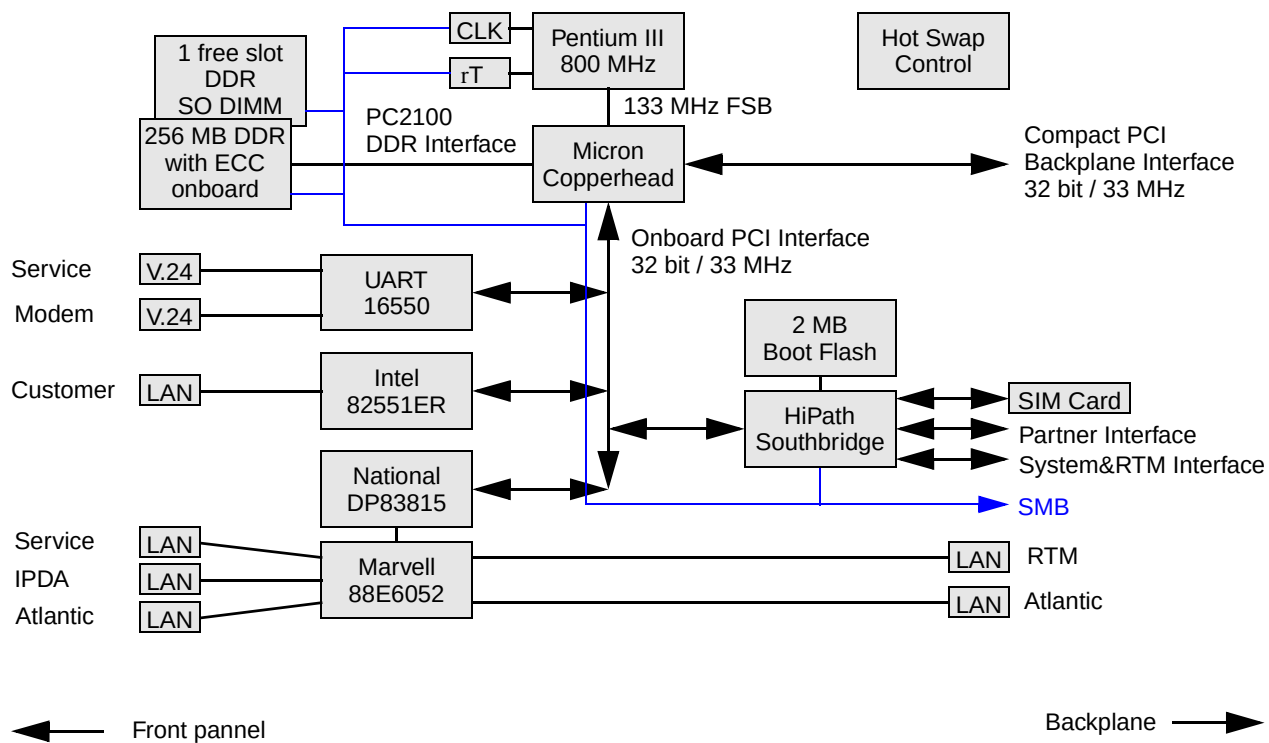
Power Supply

The board can plugged in and unplugged during live operation (hot swapable). The power supply voltages (+12 V, +5 V and +3.3 V) are supplied through the backplane. DC/DC converter generates the individual power supply voltages needed for the various circuits on the DSCXL board.

Temperature Monitoring

The processor board and the processor itself are monitored using temperature sensors. If one of the two operating temperatures is exceeded, the speed of the fans in the CompactPCI shelf is increased to regulate the operating temperature.

Block diagram





1.2.4 HDMO module

The HDMO board consists of an MO drive and a hard disk. This board may be plugged in and unplugged at any time during live operation. To prevent any loss of data, the drives should be deactivated by AMO DSSM before removing.



For the HOT Plug function:

DEACTIVATE-DSSM:UNIT=A1,CNO=1 (6);



HDMO-module

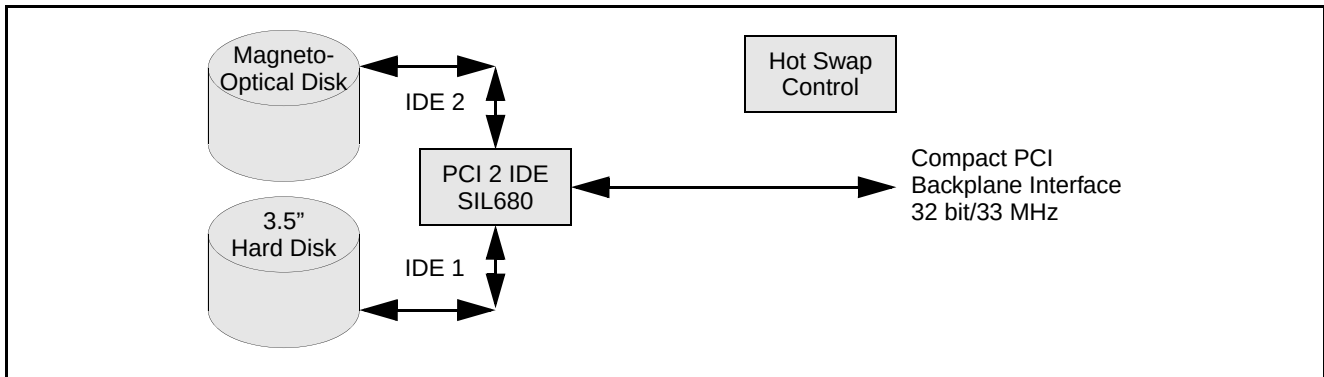
Hardware Version

- HDMO board: S30810-Q2310-X-*
- 1.3 GB MO drive: Fujitsu MCM 3130 AP (S30122-X7635-X)
- 40 GB HD drive: Seagate ST340014A (S30122-X7685-X)

LEDs

The front side of the board features two green LEDs (IDE1 = HD/IDE2 = MO) that indicate the status of the individual drives.

MO/HD Block Diagram



HDMO block diagram

Power Supply

The power supply values at the individual components on the HDMO board are as follows:

HW components	3.3 V		5 V		12 V	
	Type	Max.	Type	Max.	Type	Max.
SIL680	0.25A	0.35A	-	-		
HD drive (Seagate ST340014A)	-	-	0.70A	0.93A	0.71A	2.20A
MO drive (MCM3130AP)	-	-	2.03A	2.11A		
Power supply	0.25A	0.35A	2.73A	3.04A	0.71A	2.20A

Settings for HD and MOD



Each disk is connected to a separate IDE bus on the board ,therefore on both drives the Master/Slave-Jumper has to be set to MASTER !

MOD setting:

Master

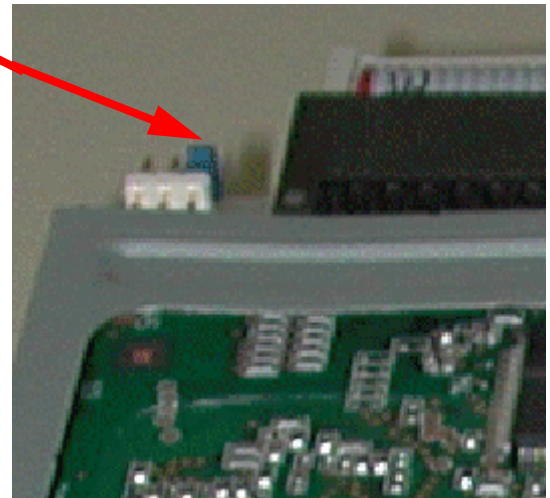
pins 5 and 6	pins 3 and 4	pins 1 and 2
ON	OFF	OFF

Slave

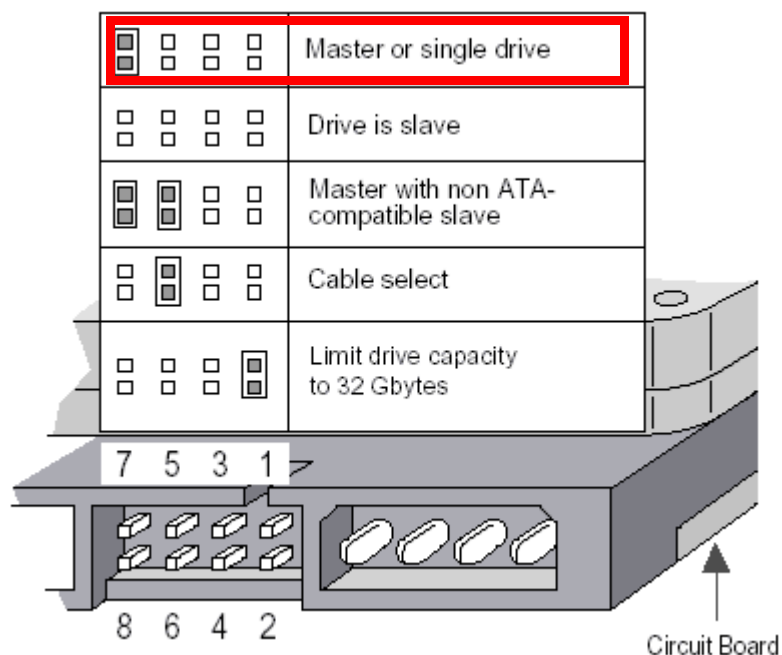
pins 5 and 6	pins 3 and 4	pins 1 and 2
OFF	ON	OFF

Cable select

pins 5 and 6	pins 3 and 4	pins 1 and 2
OFF	OFF	ON



HD setting:



1.2.5 New HD - Layout

1.2.5.1 HD - Layout HiPath 4000 V1.0

AREA		Logical name	Size	
HD	MO		in 64k- blocks	in MB
A	A	Administration area	2	1
E	E	PDS	3200	200
F	F	DBDA, DBD, TMD, PAS, AMD, DMP	992	62
G	G	CGD	560	35
H	H	DMS	960	60
I	I	DSY	160	10
J	-----	GLA	3200	200
K	J	SCR (MO-SCR)	13057	816

- The UW7 generating data (UW7 BIOS) is stored on the E-area.
- A system upgrade is only possible with Patch-Packets and/or Complete-Releases, not by changing the Harddisk.
- Boot sequence: HD-E, MO-E, HD-J and then HD-E with empty data base (Rescue Mode).
- The K-area is used for the first installation of UW7.

1.2.5.2 HD - Layout HiPath 4000 V2.0

AREA		Logical name	Size	
HD	MO		in 64k- blocks	in MB
A	A	Administration area	3	1
E	E	PDS	3200	200
F	F	DBDA, DBD, TMD, PAS, AMD, DMP	992	62
G	G	CGD	2400	150
H	H	DMS, DSY	1120	70
I	I	SCR	11217	701
J	-----	GLA	3200	200
K	-----	DIAG	9868	616

Description of Areas

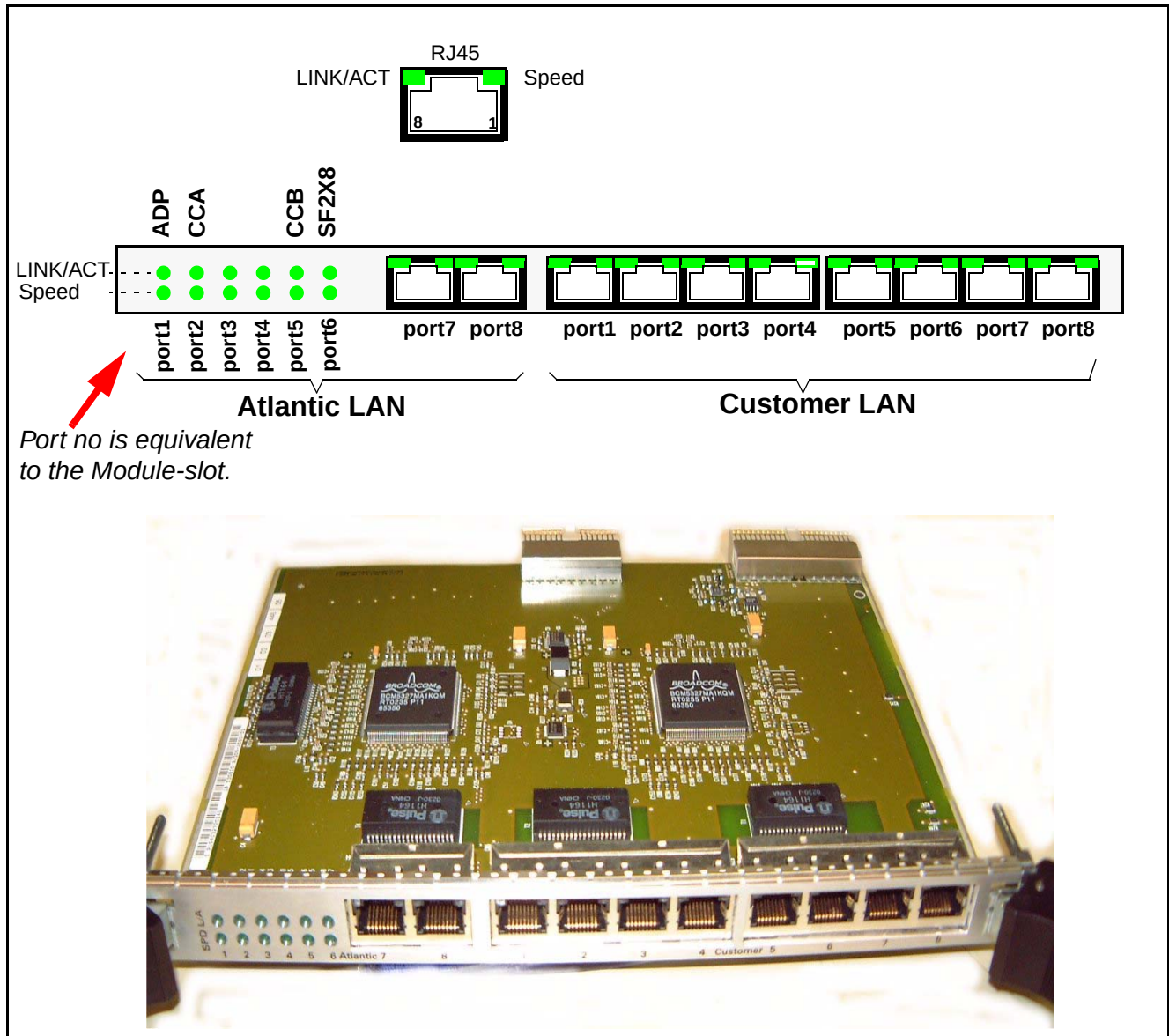
Area	Logical Name	Use
E	PDS	Program and data system
F	DBDA DBD TMD PAS AMD DMP	Data of different services are stored on this area, like-DEBUG-, development-, error-, Logbook-, Regen-da-ta).
G	CGD	Charging
H	DMS DSY	CMWIN (Upload delta), Upload ACD, HiPathSystemDiadnose
I	SCR (MO-SCR)	Uw7 installation files in packed form
J	GLA	Is used for a copy of the E-area
K	DIAG	New area for Trace data.

- The UW7 generating data (UW7 BIOS) is stored on the E-area.
- A system upgrade is only possible with Patch-Packets and/or Complete-Releases, not by changing the Harddisk.
- Boot sequence: HD-E, MO-E, HD-J and then HD-E with empty data base (Rescue Mode).
- The I-area is used for the first installation of UW7.



1.2.6 SF2X8 board

The SF2X8 (Switch Fabric) board is used as a LAN switch on the HiPath 4000 common architecture platform. This LAN switch features two switches (Atlantic LAN and Customer LAN) that operate independently of one another.



SF2X8-Module

Hardware Version

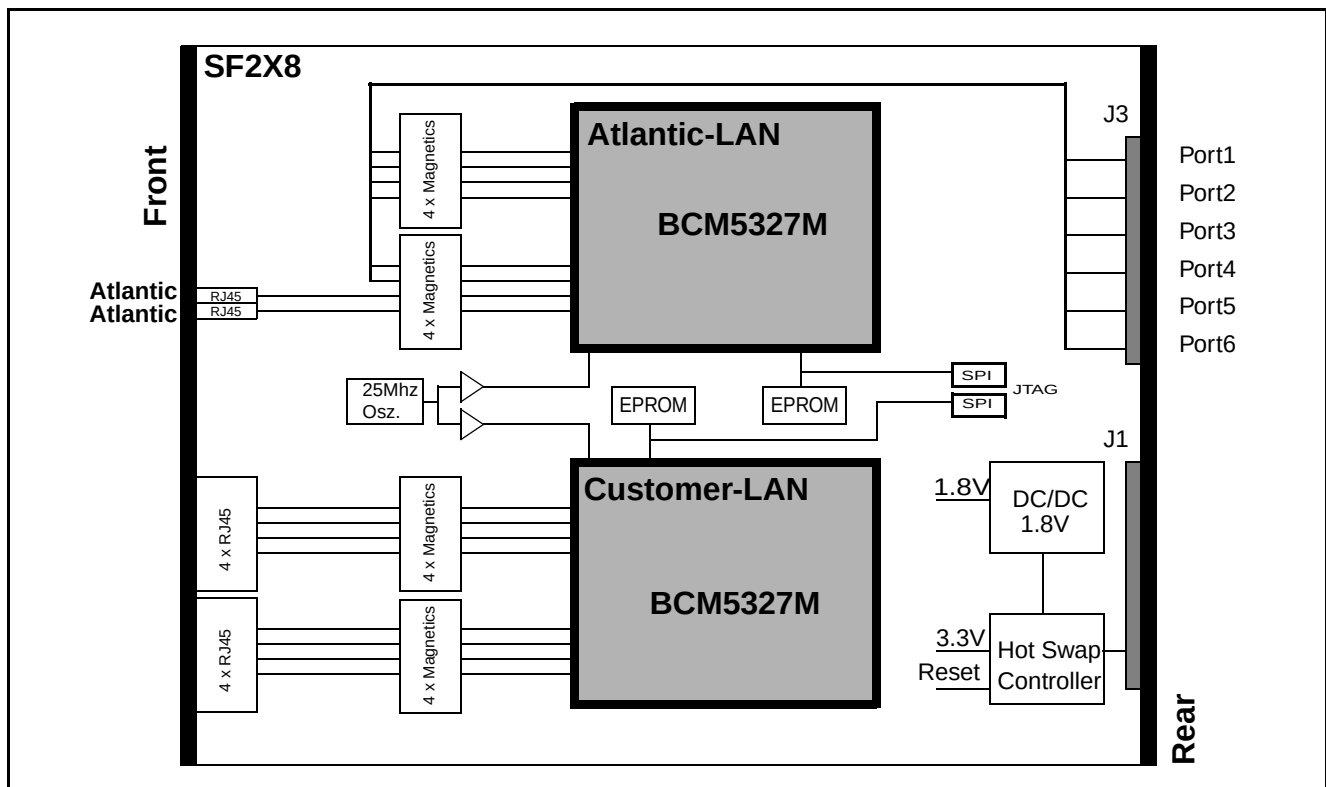
- SF2X8: S30810-Q2309-X-*

LEDs

Two green LEDs are installed for every LAN interface. The LEDs for the LAN interfaces on the front panel are integrated in the RJ45 sockets. The LEDs for the rear LAN interfaces are located on the front panel.

LED function	LED on	LED off	LED flashes
LINK/ACT green	Connection	No connection	Transferring or receiving signals
SPEED green	100 Mbps	10 Mbps	

Block diagram



SF2X8 block diagram

Interfaces

- Atlantic LAN

The Atlantic LAN switch supports two external Ethernet interfaces on the front panel and six internal Ethernet interfaces on the back of the board. These are connected to the CSPCI backplane over the J3 connector.

- Customer LAN

The customer LAN supports eight external Ethernet interfaces on the front panel. It has the function of a not programmable Layer2 switch with 8 Ethernet interfaces for 10/100 Mbit/sec.

Power Supply

The SF2X8 board receives +3.3 V from the system's backplane over the J1 connector. The 1.8-V power supply voltage required for the LAN circuits on the SF2X8 board is generated by the DC/DC converter.



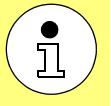
The SF2X8 board can plugged in and unplugged during live operation..

A "Hot Swap Controller" monitors the voltage levels (surge protection) and disables the board in the event of overvoltage or undervoltage. The board is reset after being disabled.



1.2.7 MCM module

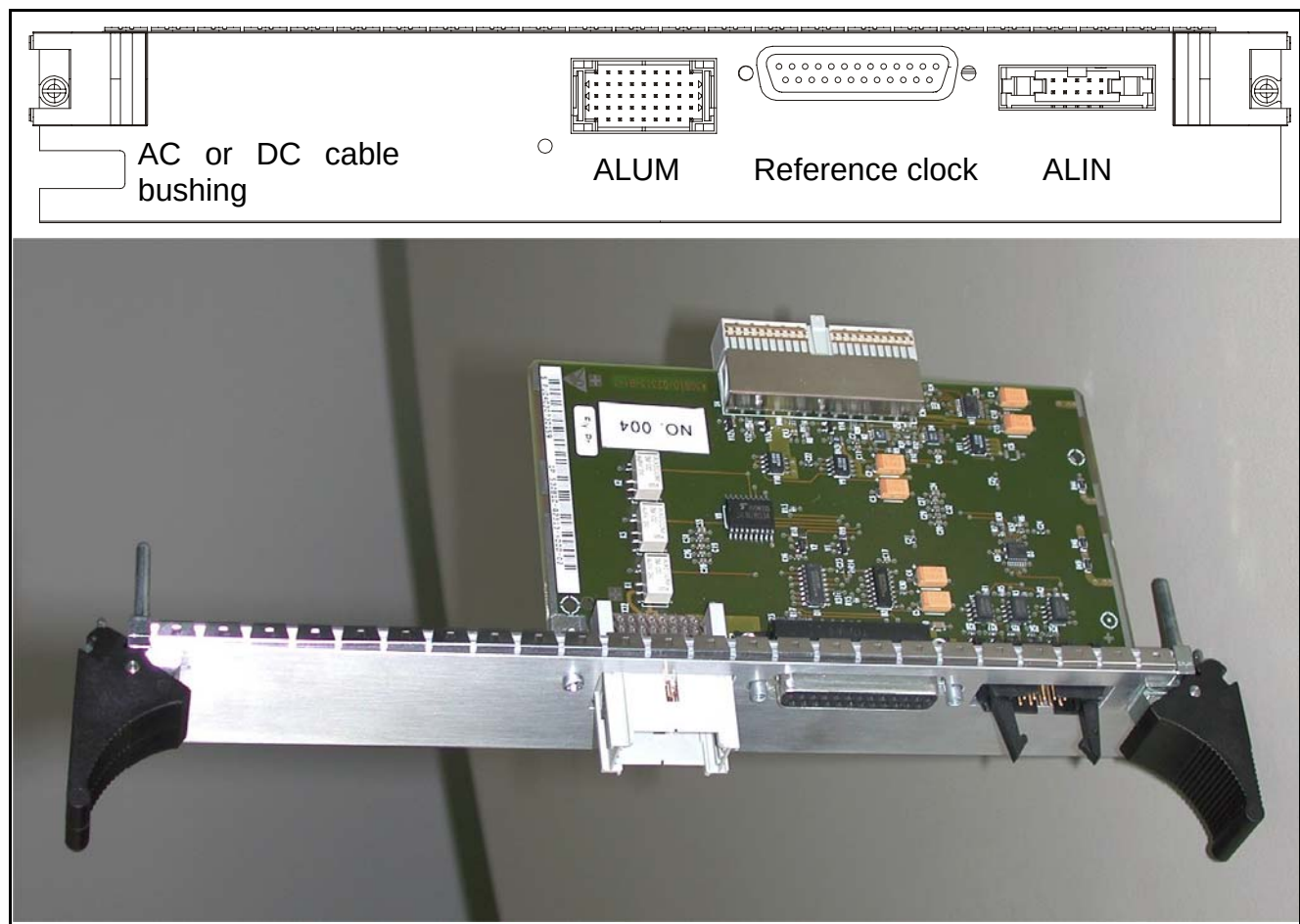
The MCM (Management and Control Module) board is an interface board to the peripheral shelves and is used as a common control board on the HiPath 4000 common architecture platform. It is connected to the backplane of the CSPCI shelf.



The MCM board is not hot swappable !!!

The board features the following control functions:

- Speed control and regulation for fan trays
- ALUM (power failure transfer)
- ALIN (alarm interface)
- Front reference clock



Hardware Version

- MCM: S30810-Q2313-X-*

Interfaces

- ALUM (power failure transfer)
- ALIN (alarm interface)
- Front reference clock
- Backplane

ALUM (power failure transfer)

The following three signals from the DSCXL board are routed over this interface:

- ALUM (power failure transfer)
- NAL (Not urgent Alarm)
- UAL (Urgent Alarm)

These signals are sent by relays to the front connector 1SU which in turn is connected to the main distribution frame by the S30267-Z317-A* cable (1SU open end).

GND					ALU M2			GND	E
				ALU M1					D
					GND				C
				NAL 2		UAL 2			B
			NAL 1		UAL 1			GND	A
1	2	3	4	5	6	7	8	9	

ALUM pin assignment

ALIN (alarm interface)

The following alarm signals are routed over this interface (cable: C39195-Z7904-A25):

Signal	Designation
WRA	DC/AC converter failure
NGAR	PSU failure redundancy
NGA	PSU failure
PFNMI	Power supply failure
BAEXF	BAEX board fault
GND	Grounding

WRA	1	2	PFNMI
NGA	3	4	NGAR
GND	5	6	BAEXF
nc	7	8	nc
nc	9	10	nc

Front reference clock

This interface (SUB-D connector socket, 25-pin) is used to connect an **Atlantic External Clock Box** (AECB: S30122-K5617-X).

The following cables are used for this:

S30267-Z304-A9 (int.) or S30267-Z304-A40 (ext.)

1	nc	14	FRONT_RCLK_N
2	nc	15	FRONT_RCLK_P
3	nc	16	CLK_OUT_P
4	nc	17	CLK_OUT_N
5	nc	18	(+5 V) for test only
6	nc	19	BACK_CLK_N
7	GND	20	BACK_CLK_P
8	nc	21	GND
9	FMB_8K_P	22	nc
10	FMB_8K_N	23	Ext_Box_Plugged
11	(+5 V) for test only	24	nc
12	nc	25	GND
13	nc		

Backplane

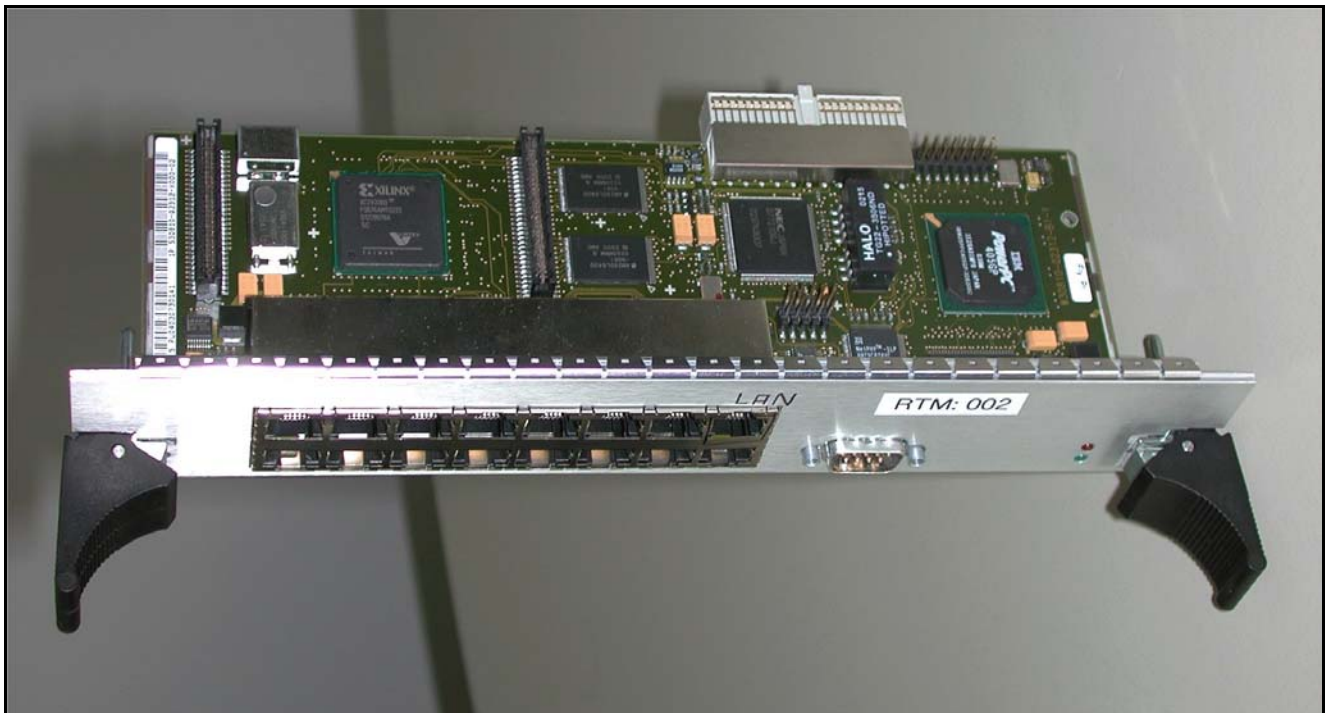
The following signals are routed to the MCM board over the backplane interface:

Signal	Board connection	Designation
MCM_SEL_L	BP	MCM select
CLKBOX_L	RTM	Clock box present
SMB_CLK	DSCXL	SMBus clock
SMB_DATA	DSCXL	SMBus data
SMB_ALERT	DSCXL	Interrupt from MAX1609
NAL	DSCXL	Not urgent alarm
UAL	DSCXL	Urgent alarm
ALUM	DSCXL	Power failure transfer
PREF_CLK	RTM	Background clock
FREF_CLK	RTM	Front reference; external reference
FMB_OUT	RTM	Frame mark bit 8 kHz
CKA_OUT	RTM	2.048 MHz system clock
FAN_T1... FAN_T3	Fan	Fan tach signals 1..4
FAN_FB	Fan	Fan feedback
+3.3 V, +5 V, +12 V	PSU	Power supply

1.2.8 RTM module

The RTM (Rear Transition Module) board is implemented in the CompactPCI architecture in HiPath 4000 V2 and forms the interface between the central processor board (DSCXL) and the peripheral LTU shelf. This board offers the same functions as its predecessor DSCX as well as the following improvements.

- It is integrated in the CompactPCI system
- It supports up to fifteen LTU shelves
- It replaces the existing LTU cables with standard CAT5, 8-pin, shielded cables, (RJ45)
- It provides a LAN-based interface to the DSCXL over the backplane
- Integrated functions: SIU / CONF (64 TSL) / MTS (4096 TSL) / DCL



RTM board

Hardware version

- RTM: S30810-Q2312-X-*

Displays

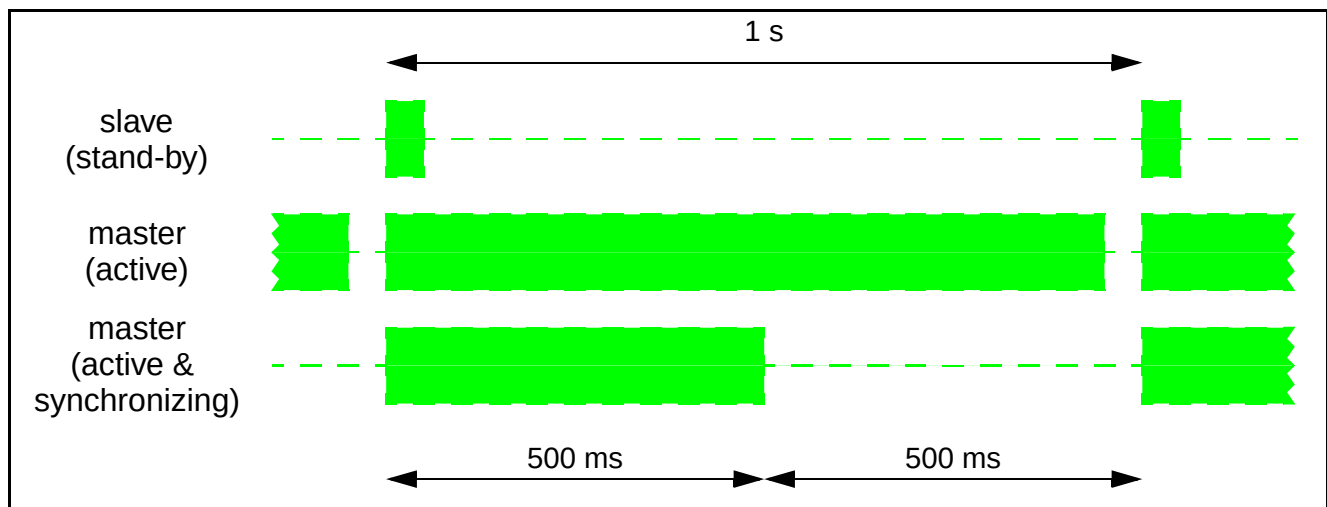
The front panel of the board features two LEDs (green = active, red = fail).

Red LED (FAIL)

This display is controlled by the software and loadware and should normally be off. If on, it indicates a real hardware or software error. In this state the green RUN LED should be off.

Green LED (RUN)

This display flashes during normal operation; the flashing rhythm indicates the MASTER/SLAVE status of the board.



- Short flashing signal (on/off approximately: 1:15) --> board is a slave (stand-by mode)
- Long flashing signal (on/off approximately: 15: 1) --> board is master; no external synchronization
- Symmetrical flashing signal (1:1) --> board is master; external synchronization active

Interfaces

- CompactPCI backplane with:
 - Power supply
 - System clocks
 - Slot addresses
 - Control signals between partner boards
 - LAN 10/100Base-T (direct connection over the backplane to the DSCXL board)

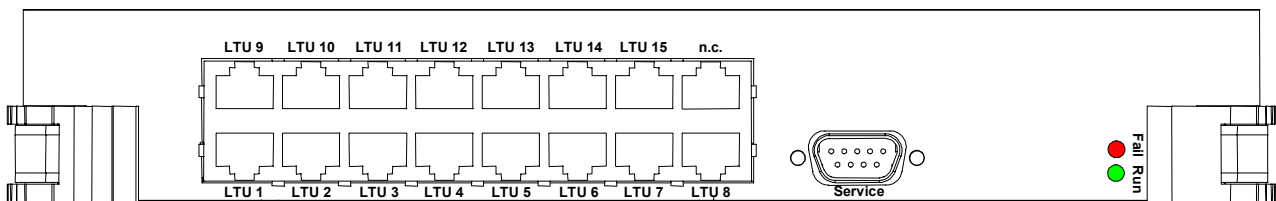
- LTU 15 x RJ45 each with 32 Mbps (each of which has 1x HDLC channel with 2 Mbps and 4x PCM64s (256 Timeslot per LTU, max. 3840 Timeslot))
- V.24 9-pin SUB-D connector (service connector)
- Displays (LED)

CPCI - Backplane

The 3.3-V power supply is routed over this interface, the system clocks are distributed and the slot addresses are read. In a duplex system, at least two RTM boards are implemented and are connected to each other by a partner interface and communicate with the appropriate DSCXL processor board over the backplane. The DSCXL board can determine the status of the RTM hardware or firmware on the basis of signals. The RTM can also recognize the status of the DSCXL boards.

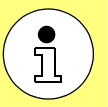
A 10/100Base-T Ethernet connection to the DSCXL is also provided over the backplane.

Front panel



- LTU interfaces

The front side of the RTM board features a block with sixteen RJ45 interfaces. A maximum of only fifteen of these are used, however. One interface remains unused because when a HiPath 4000 is fully configured, a maximum of only 15 LTUs are used. Pin assignment is based on the LAN so that standard LAN cables can be used. From an electrical perspective, LVDS (Low Voltage Differential Signaling) drivers and receivers are used instead of Ethernet signals.



No crossed over LAN cable can be used.

- V.24 interface

This interface is used by Service personnel for tests/diagnostics. A crossed cable ("NULL modem") is used for connection. The baud rate is 38400 bps.

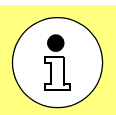
PIN No.	Signal	I/O	Remark
1	DCD	I	Internal pull-up
2	RXD	I	Internal pull-up
3	TXD	O	
4	DTR	O	
5	0 V		Ground
6	DSR	I	Internal pull-up
7	RTS	O	
8	CTS	I	Internal pull-up
9	RI	I	Internal pull-up

Power Supply

The RTM board receives +3.3 V from the system's backplane. The power supply voltages required for the various circuits on the RTM board are generated by the DC/DC voltage converter.

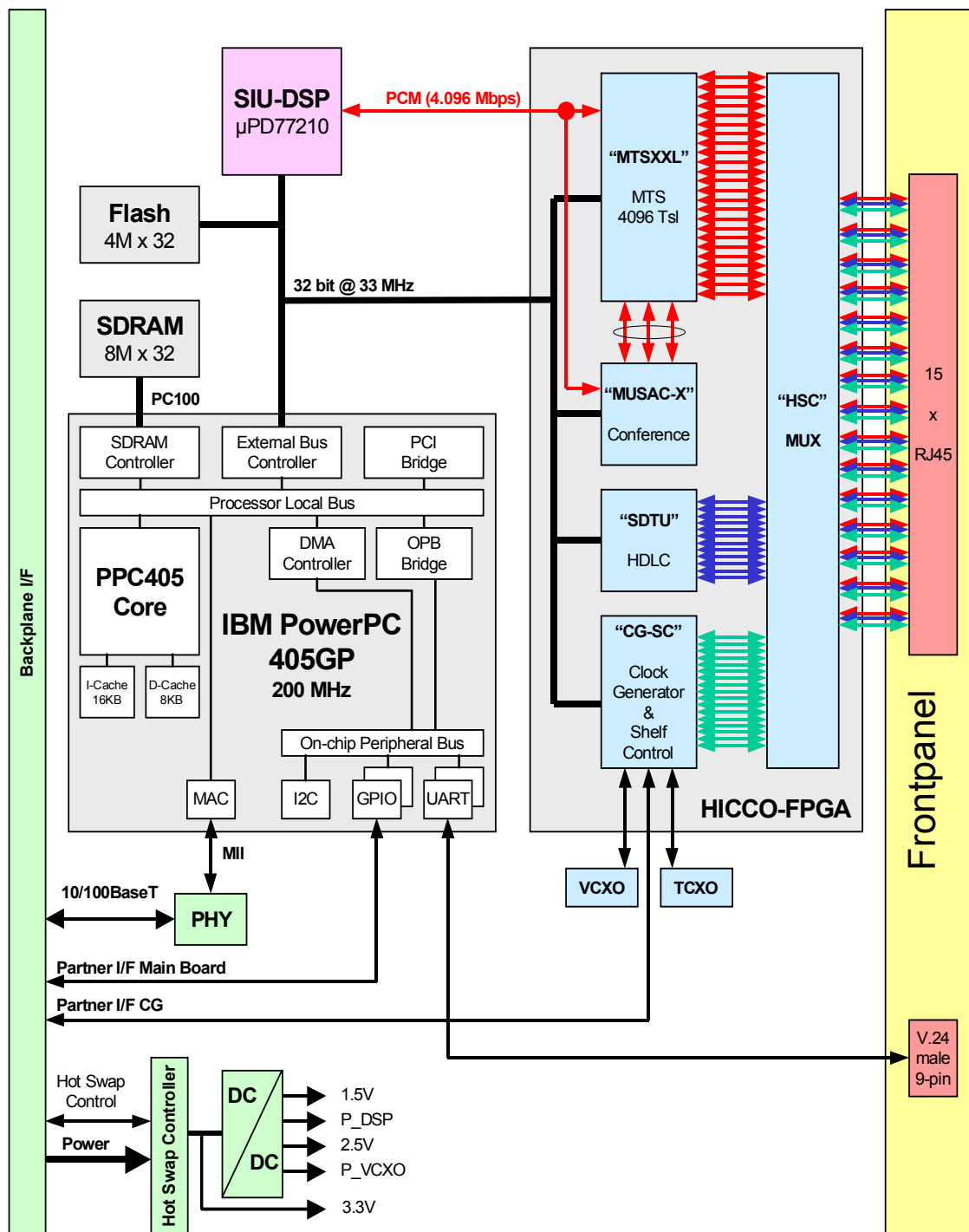
A "Hot Swap Controller" monitors the local voltage levels and disables the board:

- when 2.5 A power consumption exceeds 20μs
- immediately when 7.5 A is reached
- in the case of critical voltage underflow; once disabled, the board automatically attempts to perform a reset after approximately 1.5 s.
- when the board is plugged in and unplugged.



The board can plugged in and unplugged during live operation ("Hot Swap").

- Block diagram



AMO changes:

New loading of all RTM modules:

ACTIVATE-USSU:UNIT=RTM,TYPE=BOARD;

New loading of the active RTM module (Duplex):

ACTIVATE-USSU:UNIT=RTM,TYPE=DATA;

1.2.9 Power supplies

ACPCI / DCPCI

In HiPath 4000 V2.0 or later, the ACPCI/DCPCI power supply units will be used on the new CSPCI shelf. The two power supply units vary only in input power. The output voltages and the mechanical design are identical.

The ACPCI converts AC power to DC. The AC input voltage is 90-264 VAC from the utility outlet that provides power to the system (nominal input voltage 110/230 VAC). The nominal input frequency is 50/60 Hz (tolerance: 47-63 Hz).

The mains input power cable is not directly connected to the power supply unit but is plugged in at the back of the CSPCI shelf (see also section " ACPCI / DCPCI Input Power Connectors -42"). The mains input power is fed into the power supply unit via the backplane. The AC power supply cable is fed through a slot in the front panel of the MCM board.

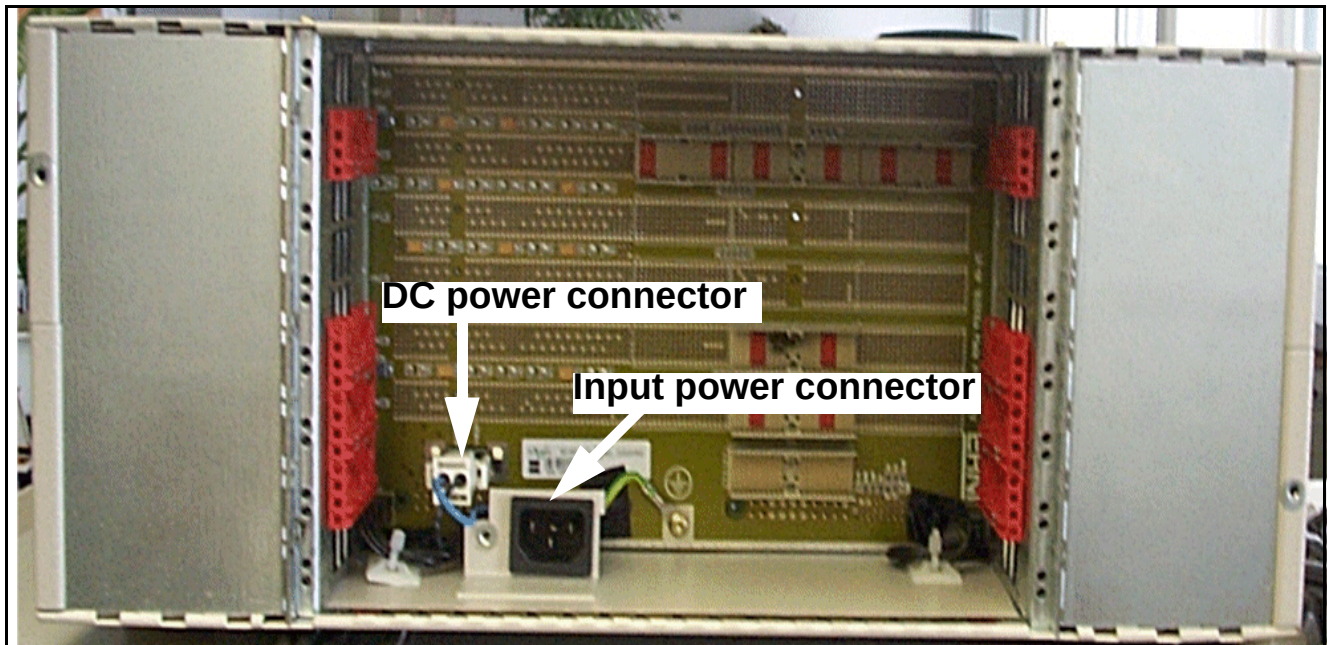
For the DCPCI, only 48 VDC (tolerance: 36-72 VDC) is directly connected to the rear of the backplane.

The individual output voltages are: +3.3 V, + 5 V, +12 V and -12 V.



ACPCI / DCPCI - Power supply

ACPCI / DCPCI Input Power Connectors



ACPCI/DCPCI Power Connectors

Hardware versions

ACPCI:

Company: Magne Tek (S30122-K7682-M1)

Company: Cherokee (S30122-K7682-C1)

Cable variants: 3-pin for IM: C39195-Z7001-C17 or 3-pin for NA: C39195-Z7001-C19

(IM = International Market, NA = North America)

DCPCI:

Company: Magne Tek (S30122-K7683-M1)

Company: Cherokee (S30122-K7683-C1)

Cable variant: S30805-H5298-X14

LED Indications

The ACPCI/DCPCI has one green LED that is illuminated when all output voltages are within tolerance. The LED is not illuminated if any DC output voltage is not within tolerance or if the input voltage is lost.

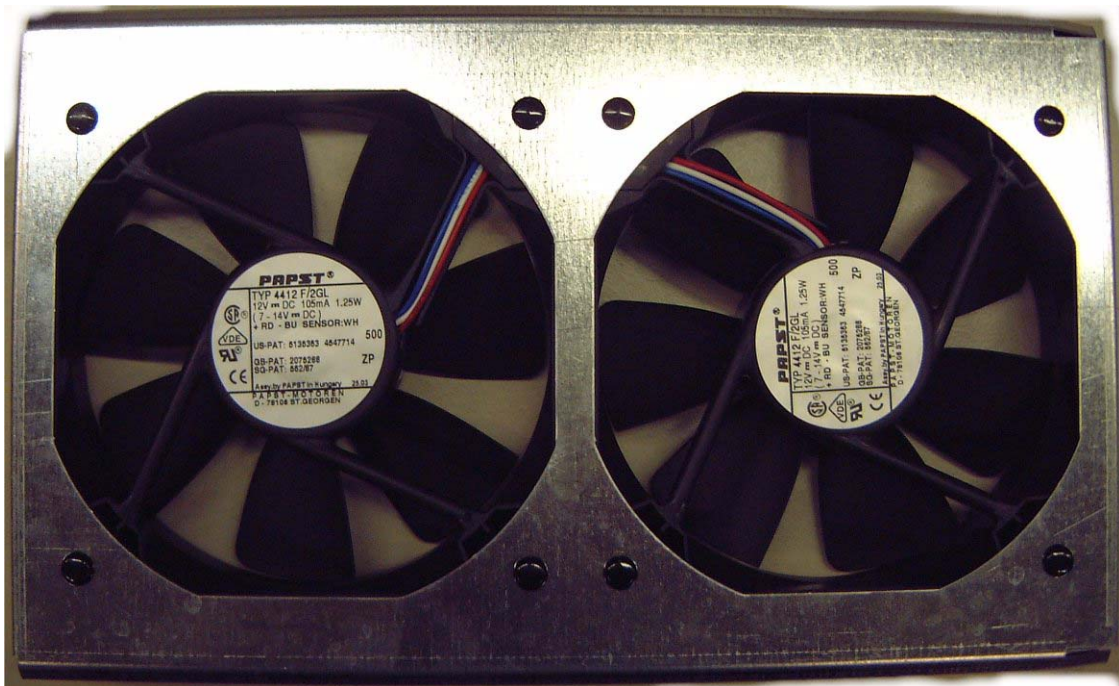
Input/Output Assignment

Pin.....Signal Name	Pin.....Signal Name
.....47	37.....Data Out
46	38.....Degrade Signal
.....45	39.....Inhibit
-----	40.....Clock
42 43 44	41.....V2 Current share
39 40 41	42.....Fail Signal
36 37 38	43.....Chip Select
33 34 35	44.....V3 Current Share
30 31 32	45.....Chassis Ground (PE)
27 28 29	46.....AC Input - Neutral
24 25 26	+DC Input
21 22 23	47.....AC Input Line
-----	- DC Input
19.....20	
17.....18	
15.....16	
13.....14	
11.....12	
9.....10	
7.....8	
5.....6	
3.....4	
1.....2	

1.2.10 Fan Tray

The fan tray is a plug-in unit for 19-inch houses and consists of two 12-Vdc fans. It is suitable for on-site installation and replacement. An air current (from left to right) of 30 cf/m per fan is sufficient. Thermal simulation is subsequently performed to check performance. Each fan generates a square wave, open collector signal that is proportional to the fan speed. The absence of this signal indicates a fan problem in the system.

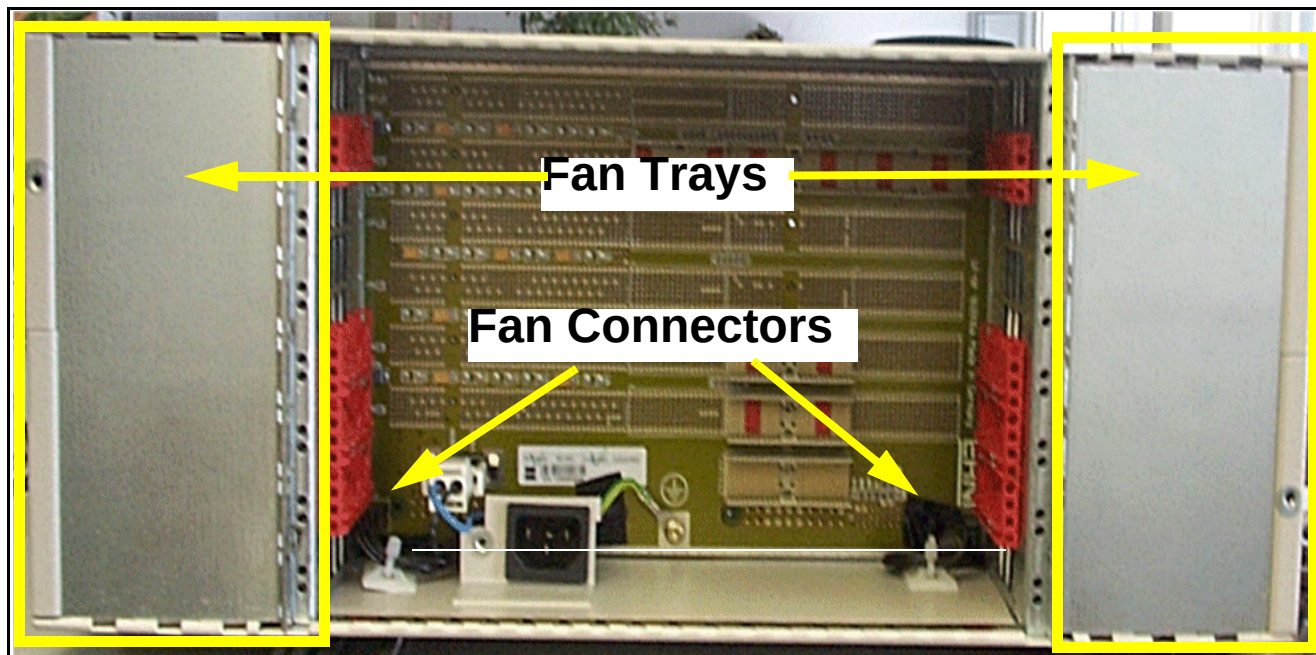
The following fan model is used: model 4412F/2 GL (PAPST).



Fan Tray

The fan trays are positioned on the left and right in the CSPCI shelf. Each fan features three conductors (12 V, ground (GND), speed signal). The fan trays are connected to the backplane by a connection cable.

The figure indicates the position of fan trays in the CSPCI shelf.

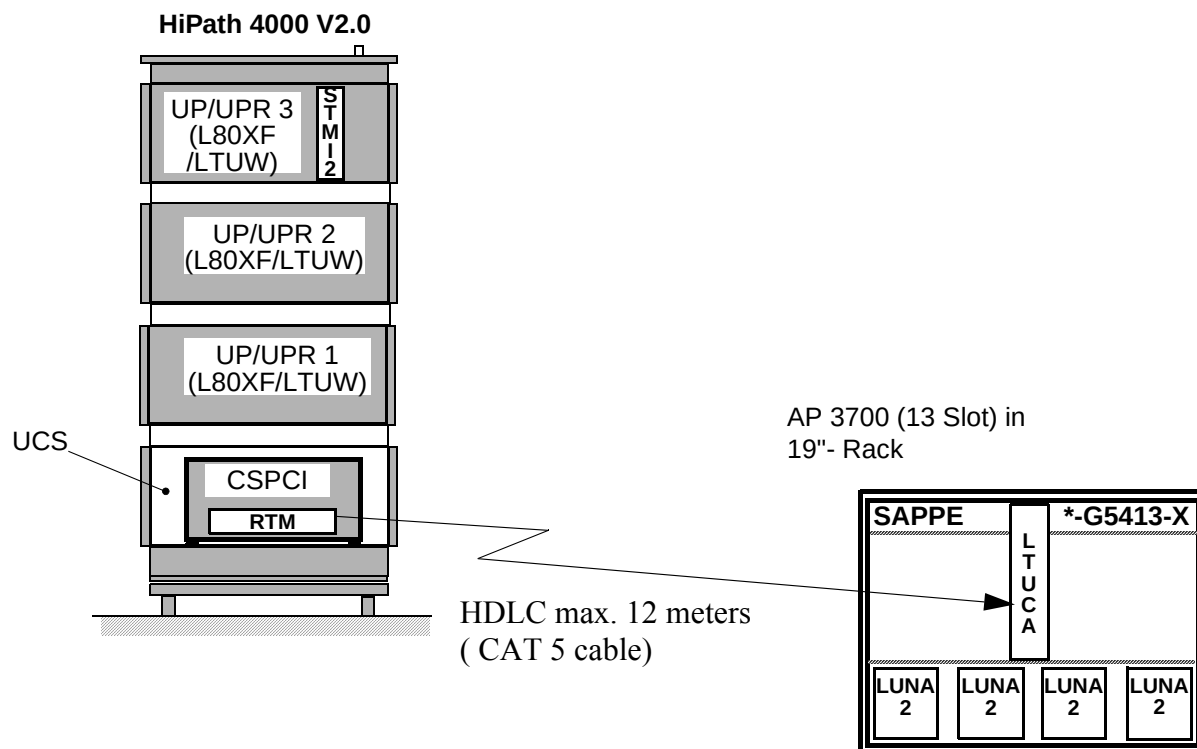




1.3 LTU-Shelf - AP 3700-13 SAPP (Synergy Access Point Platform)

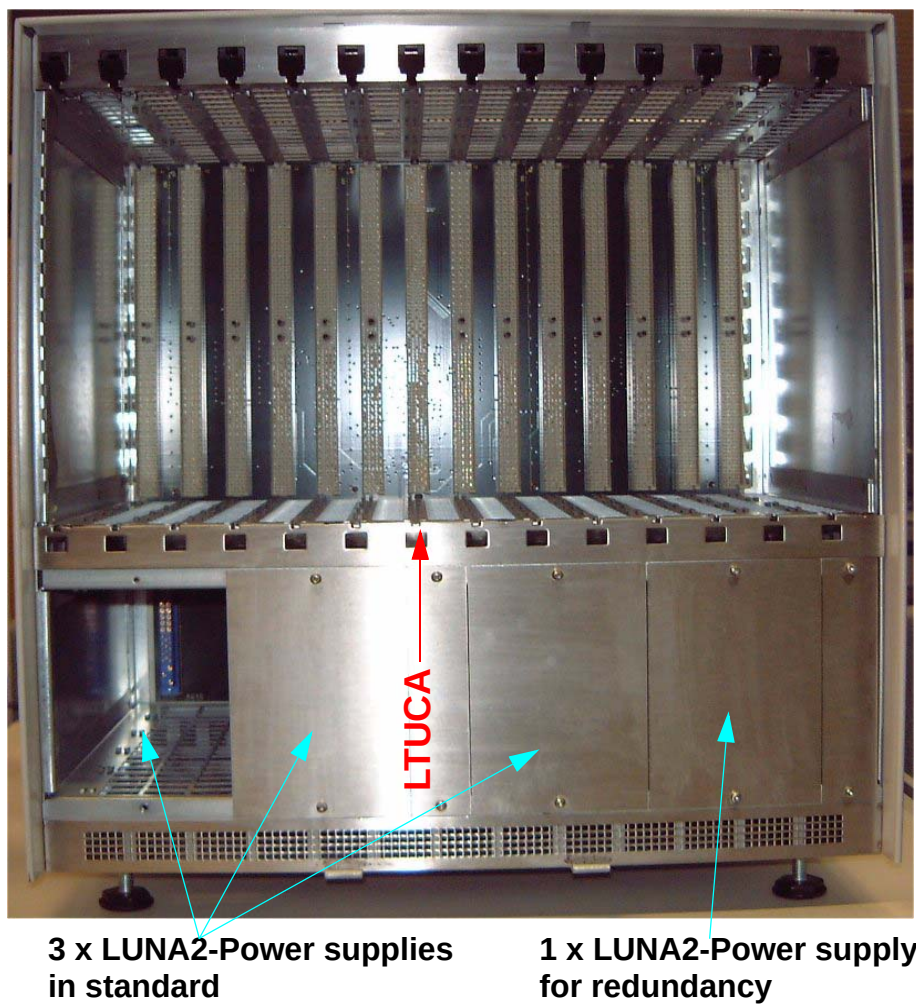
The AP 3700 is a peripheral shelf with an LTUCA-control board that can be installed in a 19" cabinet system. The AP 3700 can be populated with up to 13 peripheral modules.

The AP 3700-13 is also used in HiPath 3000, where it is called "H3701EB".



1.3.1 Shelf population (Front)

- Slot 1 -6: Peripheral modules
- Slot 7: Central control board LTUCA (AP3700-13)/not populated in H3701BB and AP 3700-IP
- Slot 8- 14: Peripheral modules
- Up to four power supply units LUNA 2

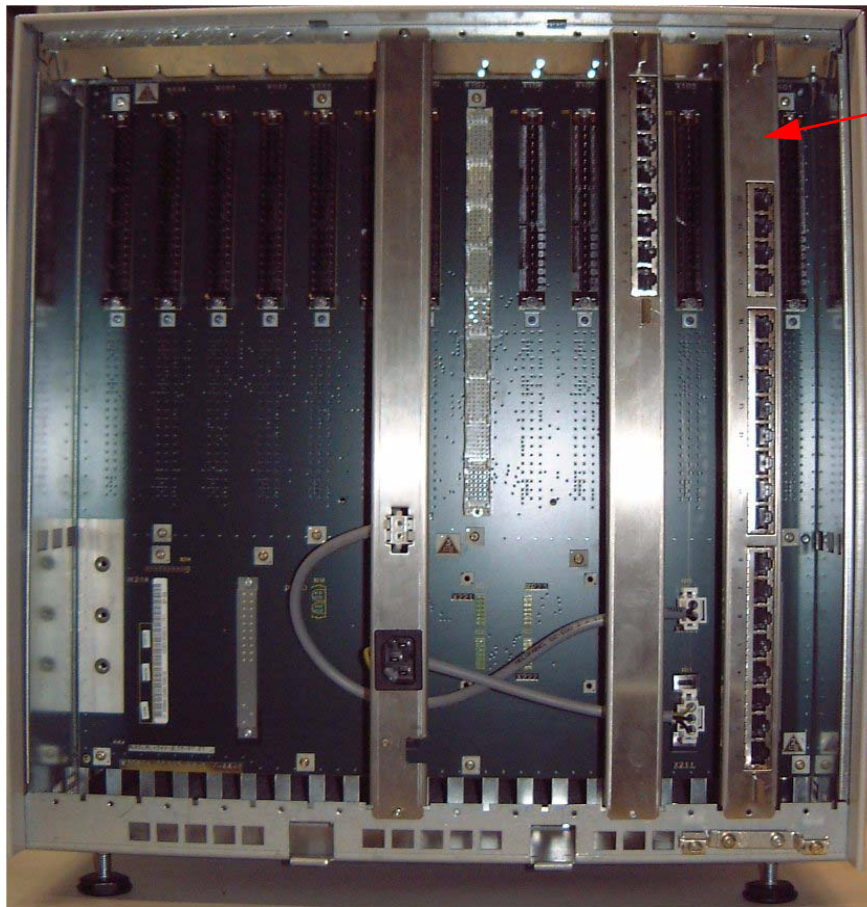


AP 3700 Front view

1.3.2 Configuration rear view

AP 3700 (Rear view) with Patch Panels

- Slot 14 - 8: Patch panels (8, 16 and 24-port RJ-45 connector/CHAMP plug)
- Slot 7: Power supply connection board (DC at the top/AC at the bottom)
- Slot 6 -1: Patch panels (8, 16 and 24-port RJ-45 connector/CHAMP plug)
- Cable clip for earth connection



MDF connectors

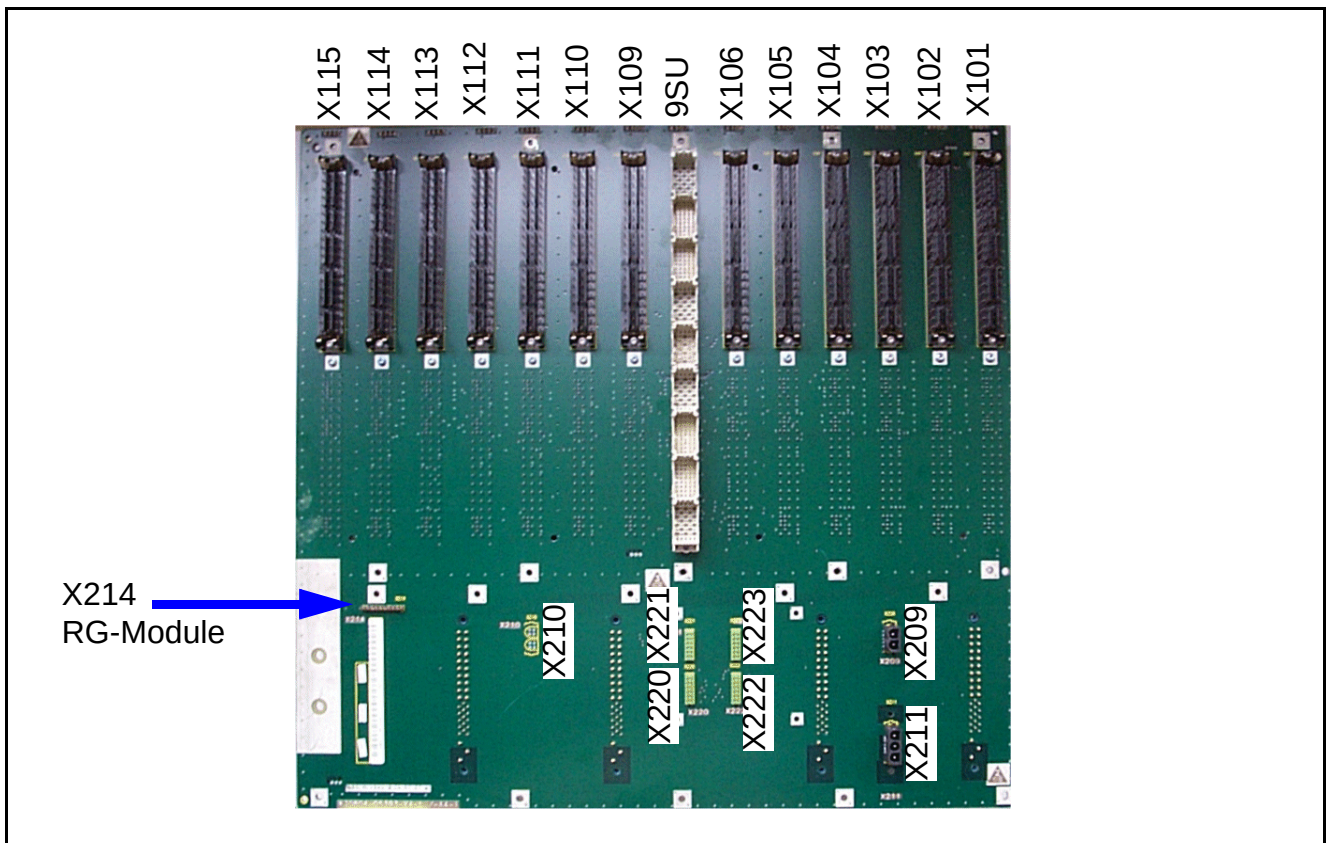
AP 3700 (Rear view) with Patch Panels

Shelf Population (Rear) without Patch Panels

- SIVAPAC connector on the backplane for cable connection to external patch panels or to a mains distribution frame (MDF)
- Power supply connection board (DC at the top/AC at the bottom)
- Cable clip for earth connection

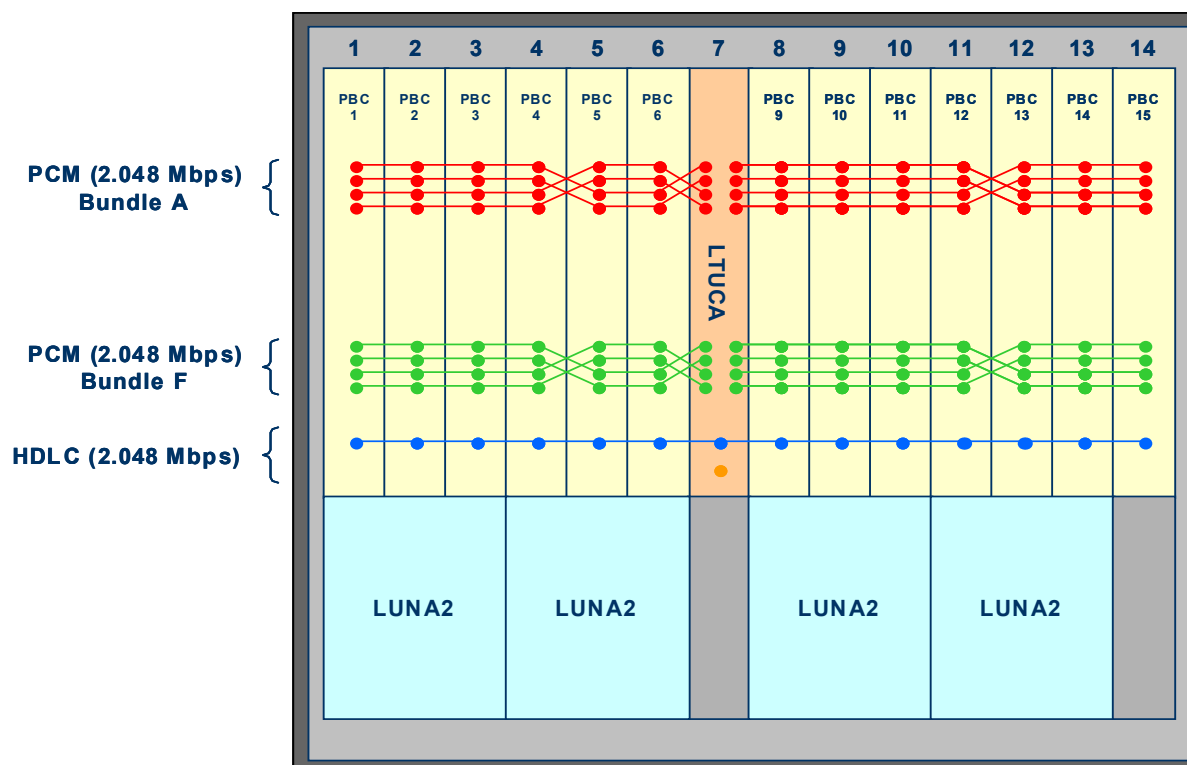
1.3.3 AP 3700 Backplane Connections

- Connector X101 - X115: SIVAPAC connector for peripheral connections
- Connector 9SU: SIPAC connector for external signalling (e.g. reference clock)
- Connector X209/X210: DC connection
- Connector X211: AC connection
- Connector X214: 10-pin plug (RG module)
- Connector X220-223: 14-pin plug (4x DBSAP connection)

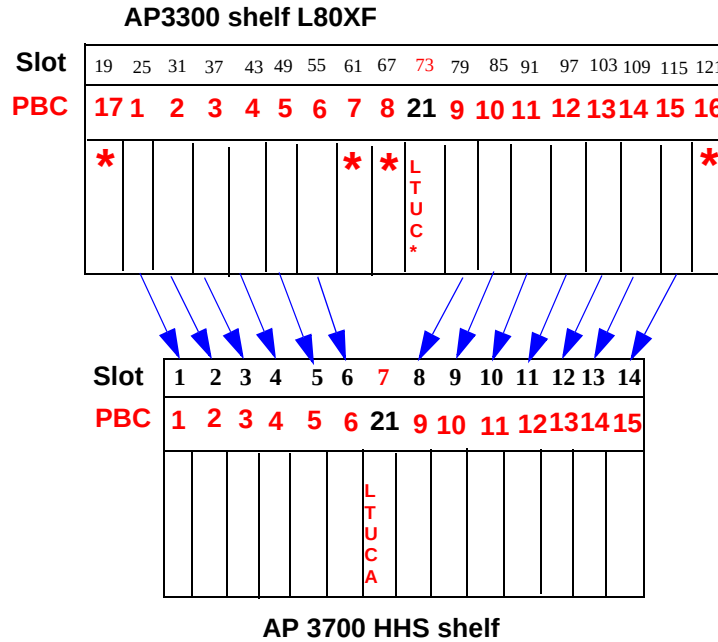


AP 3700 Backplane connectors

1.3.4 Highway - view



1.3.5 Numbering of the LTU-Slots



- The Slots of the AP 3700 shelf are counted from 1 to 14 (necessary for AMO BCSU).
- Slot 7 in the AP 3700 shelf is reserved for the LTUCA board.

1.3.6 AMO-Commands

AMO	Parameter	Sprache/ Language	Beschreibung/ Description
UCSU	AP370013	d	SAPP rahmen angeschlossen an cpci shelves
		e	SAPP frame connected to cpci shelves

ADD-UCSU:UNIT=LTU,LTG=1,LTU=1,LTPARTNO="Q2266-X",FRMTYPE=AP370013;

Q2266-X is the partnumber for the LTUCA board

1.3.7 Control board LTUCA for AP 3700 (LTU)

The LTUCA (Line Trunk Unit Control Advanced) is the interface between central and peripheral parts of the system. The LTUCA selects the signals from the active control unit and distributes them to the appropriate boards in the LTU shelf (LTU shelf is a general expression for all types of peripheral shelf. It can be one of the compact or extended compact shelves). The LTUCA also receives signals from the peripheral boards and transmits them to the common control.

Existing LTU cables are replaced by the new high-speed HSC cables (RJ45 CAT5). The signals are routed in a multiplexed data flow. This multiplex functionality is supported on the "common control" side of the RTM board and on the peripheral side of the LTUCA board.

Two HSC interfaces are provided on the LTUCA for CCA and CCB. Two additional lines are connected for broadband applications (overlay shelf function). Four RJ45 connector sockets are installed for this on the front of the LTUCA board. In this case, a maximum of only eight peripheral LTU shelves can be connected for each HiPath 4000 V2 system.

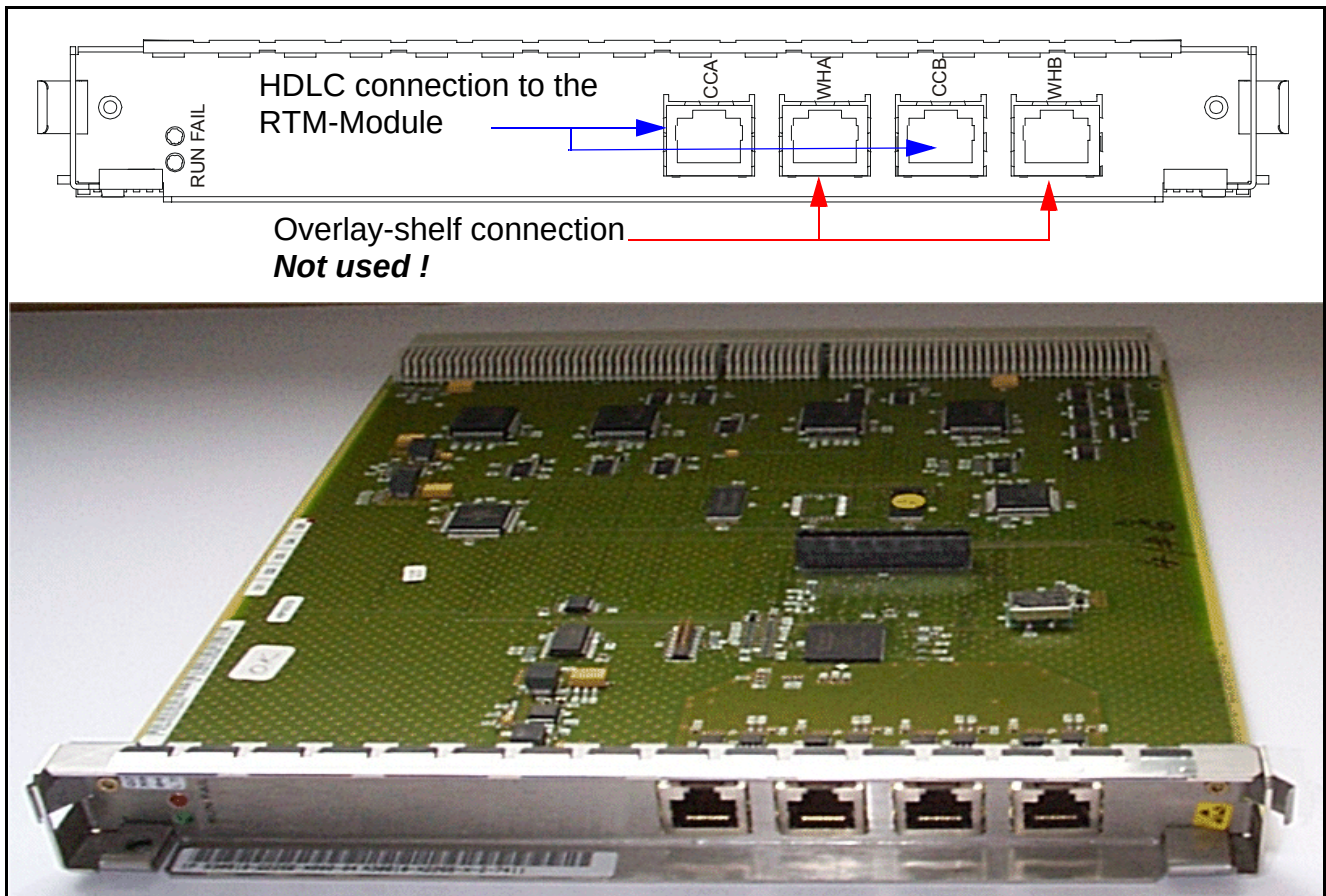
The board can be integrated in the following system architectures:

- Hicom 300 (Atlantic architecture)
- HiPath 4000 (AP 3300 flexpack)
- HiPath 4000 (AP 3700 19" architecture)

The LTUCA is mainly used in the AP 3300 or AP 3700 basic box in a "DSCXL in CompactPCI shelf" instead of the NCUI board.



The LTUCA does **not** replace the LTUCX or LTUCE in existing systems. These boards are still used because the LTUCA is not compatible with existing processor boards.



LTUCA board

LEDs

The front side of the board features a green LED (RUN) and a red LED (FAIL) that indicate board status.

Hardware version

- LTUCA: S30810-Q2266-X-*

Use in Extended Shelves

This LTUCA can be used in the following extended shelves:

LTUW: S30804-B5367-X/B5385-X and B5388-X

L80XF: S30804-B5379-X and B5389-X

L80XW: S30804-B5366-X

AP3700: S30807-U6620-X

Cable types

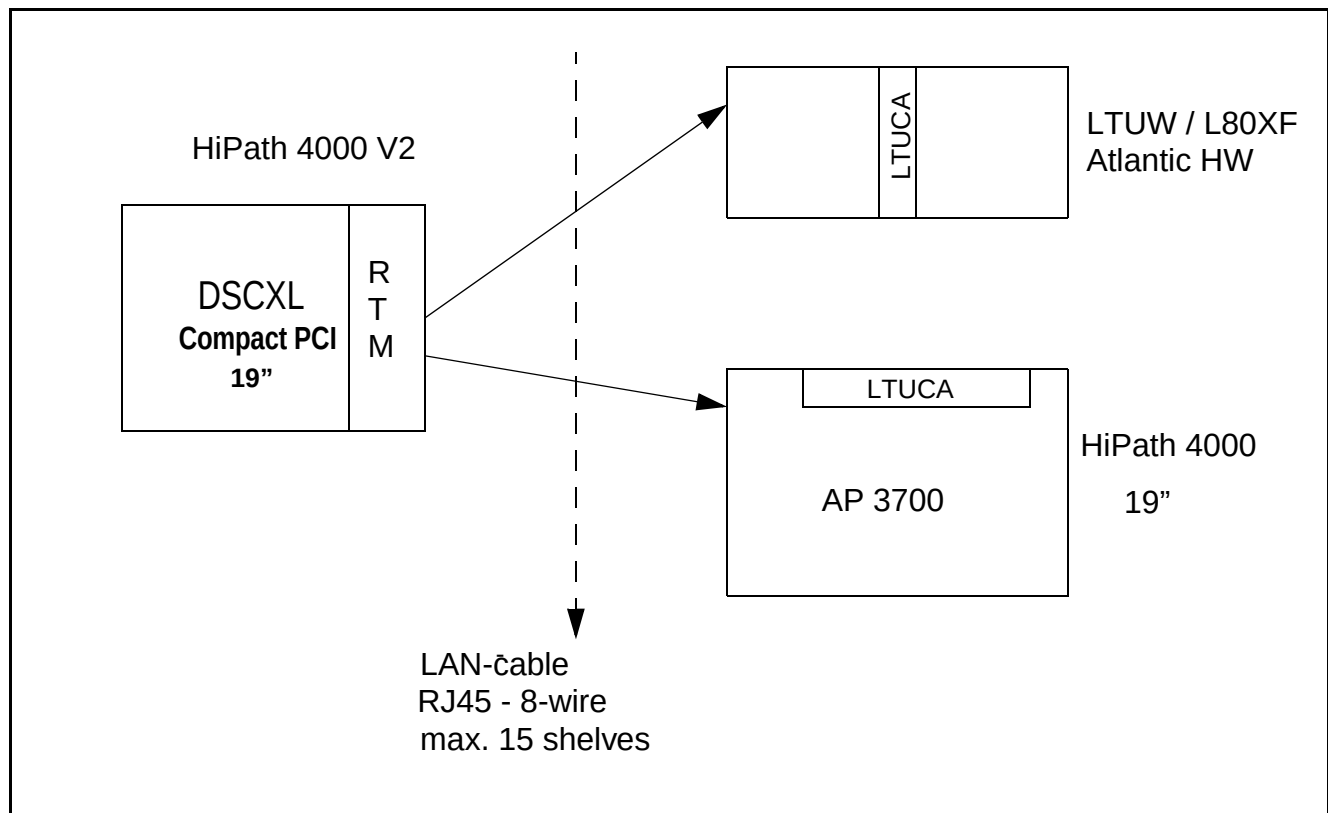
The following CAT 5 RJ45 cable types are available for connecting the LTU shelf:

C39195-Z7211-A7, 7-m twisted cable, 10BT (RJ45)

C39195-Z7211-A50, 5-m twisted cable, 10BT (RJ45)

C39195-Z7211-A100, 10-m twisted cable, 10BT (RJ45)

LTUCA Hardware Concept (Application Scenarios)

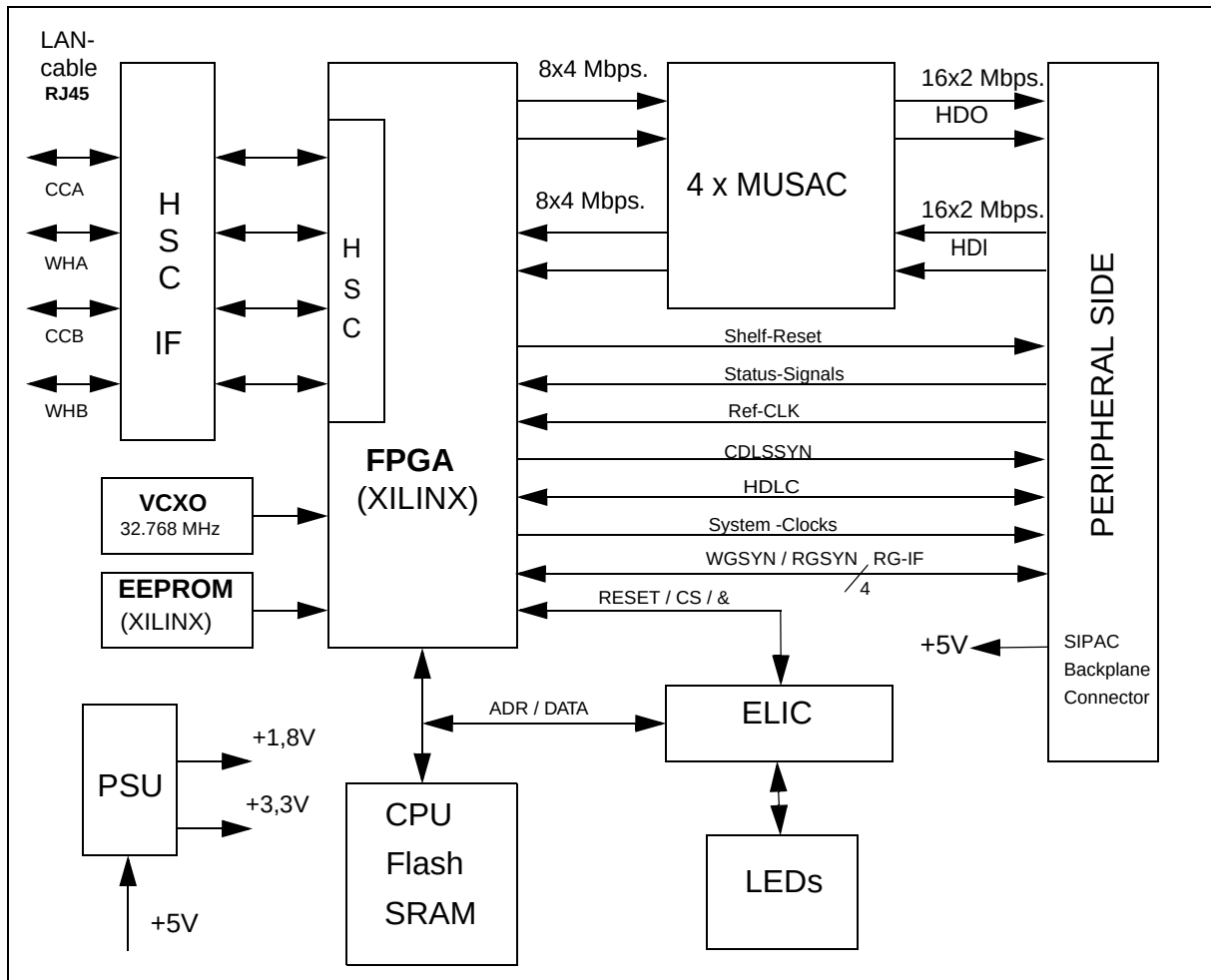


LTUCA Hardware concept HiPath 4000 V2.0 Application scenarios)

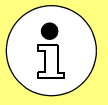
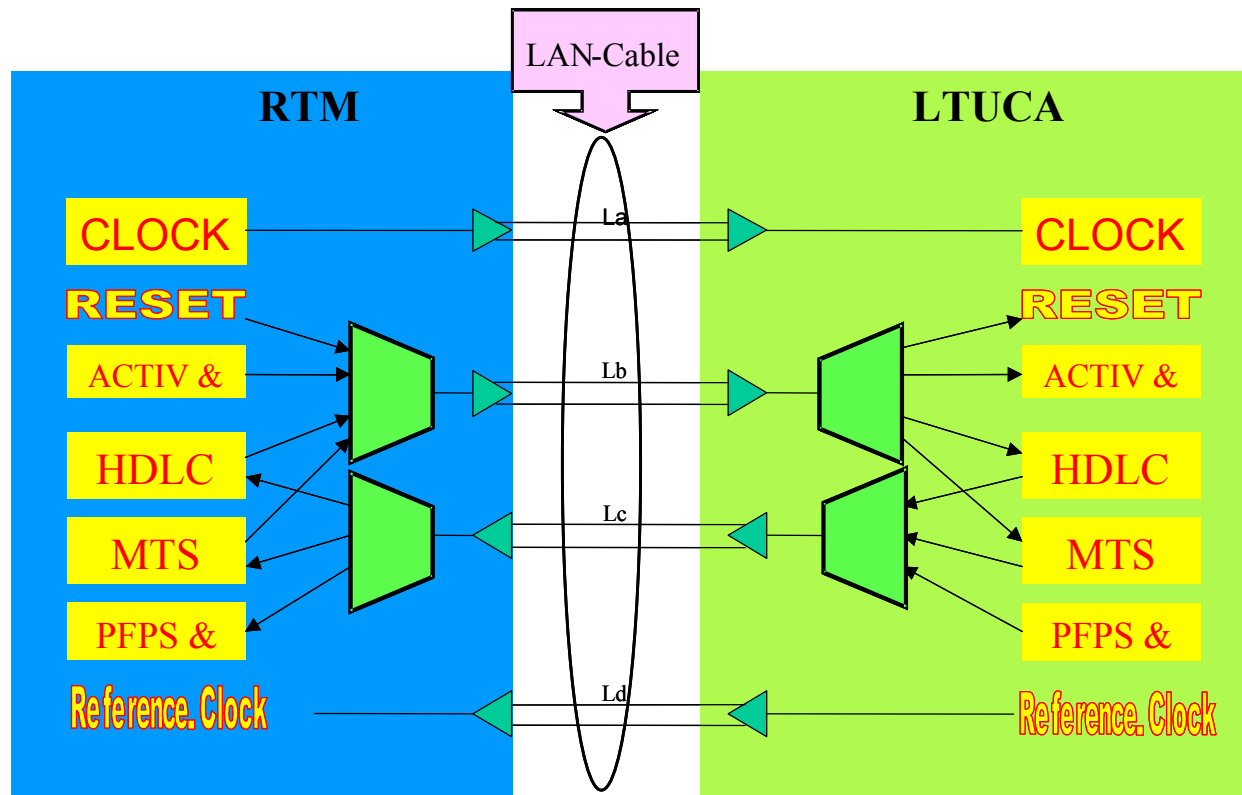
Power supply

The board receives a direct current of 5 V over the backplane. The individual voltages required (1.8 V/3.3 V) are generated by the DC/DC converter on the board.

- Block diagram



- LAN-cabling - Signalling



No crossed over LAN cable can be used.



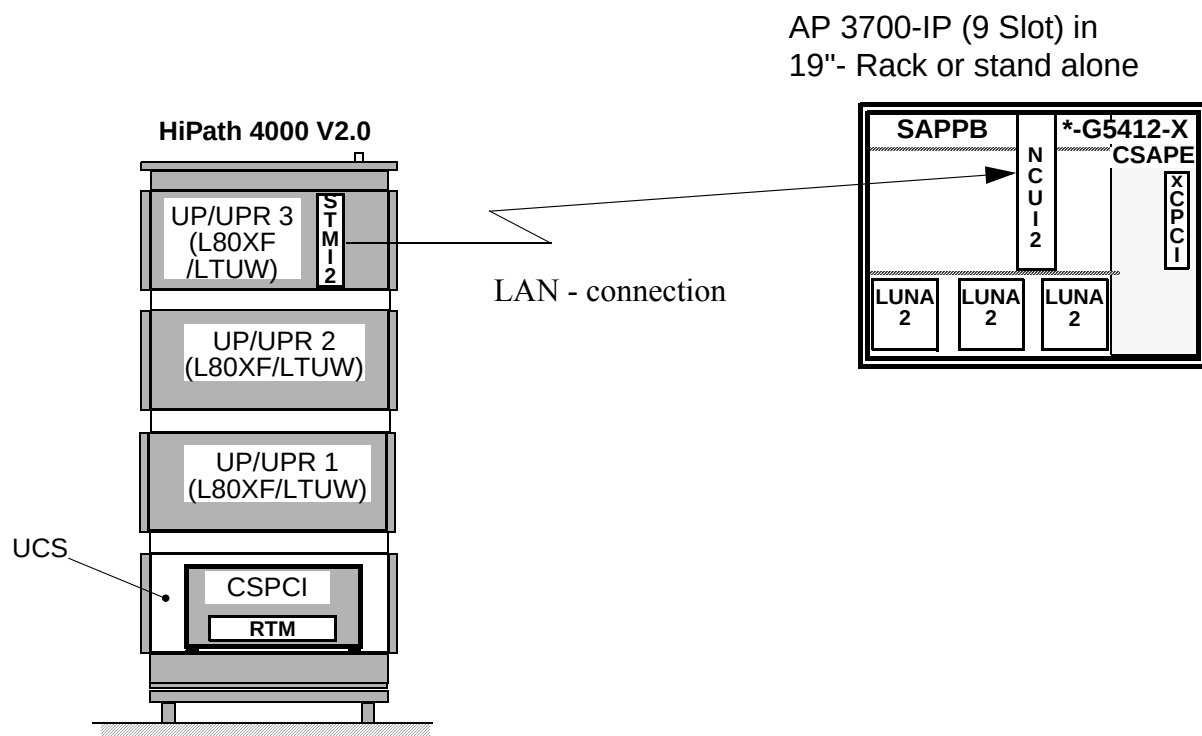
1.4 IPDA - AP 3700-IP SAPP (Synergy Access Point Platform)

The AP 3700-IP is a peripheral shelf with an NCUI2 control board that can be installed as a standalone system or in a 19" cabinet system. The AP 3700-IP can be populated with up to nine peripheral modules.



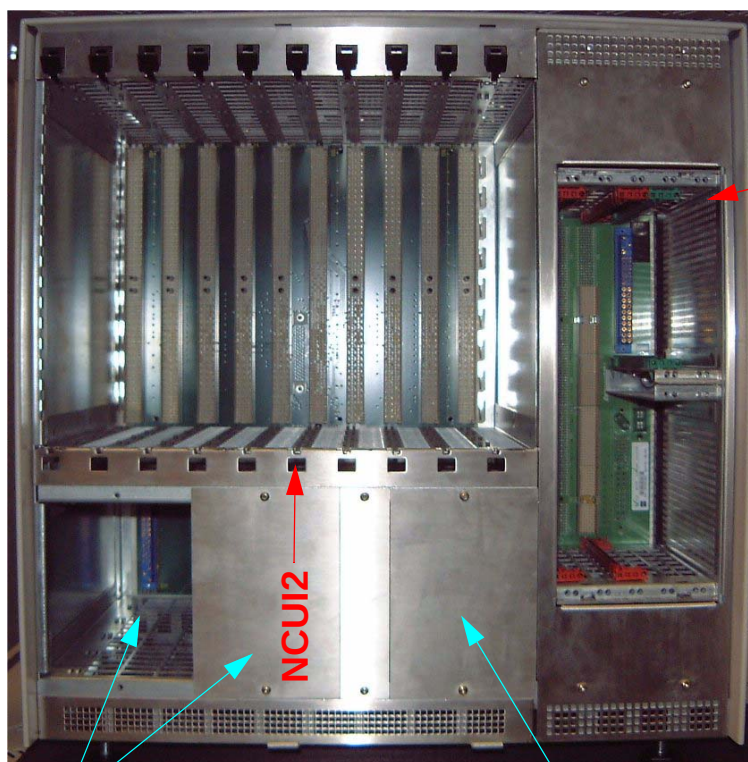
In addition, a separate CompactPCI cassette can be installed in the shelf as an AP Emergency server. (This option is not yet available.)

The AP 3700-IP is also used in HiPath 3000, where it is called "H3701BB".



1.4.1 Shelf population (Front)

- Slot 1 - 5: Peripheral modules
- Slot 6: Central control board NCUI2 (AP 3700-IP)/CBSAP (H3701BB)
- Slot 7 - 10: Peripheral modules
- Up to three power supply units LUNA 2
- REALS (**R**elays and **ALUM** for **SAPP**), used in H3701BB (HiPath 3000) only.
- CompactPCI cassette (AP Emergency), used in AP 3700-IP (HiPath 4000).



cPCI-Cassette
(AP Emergency)

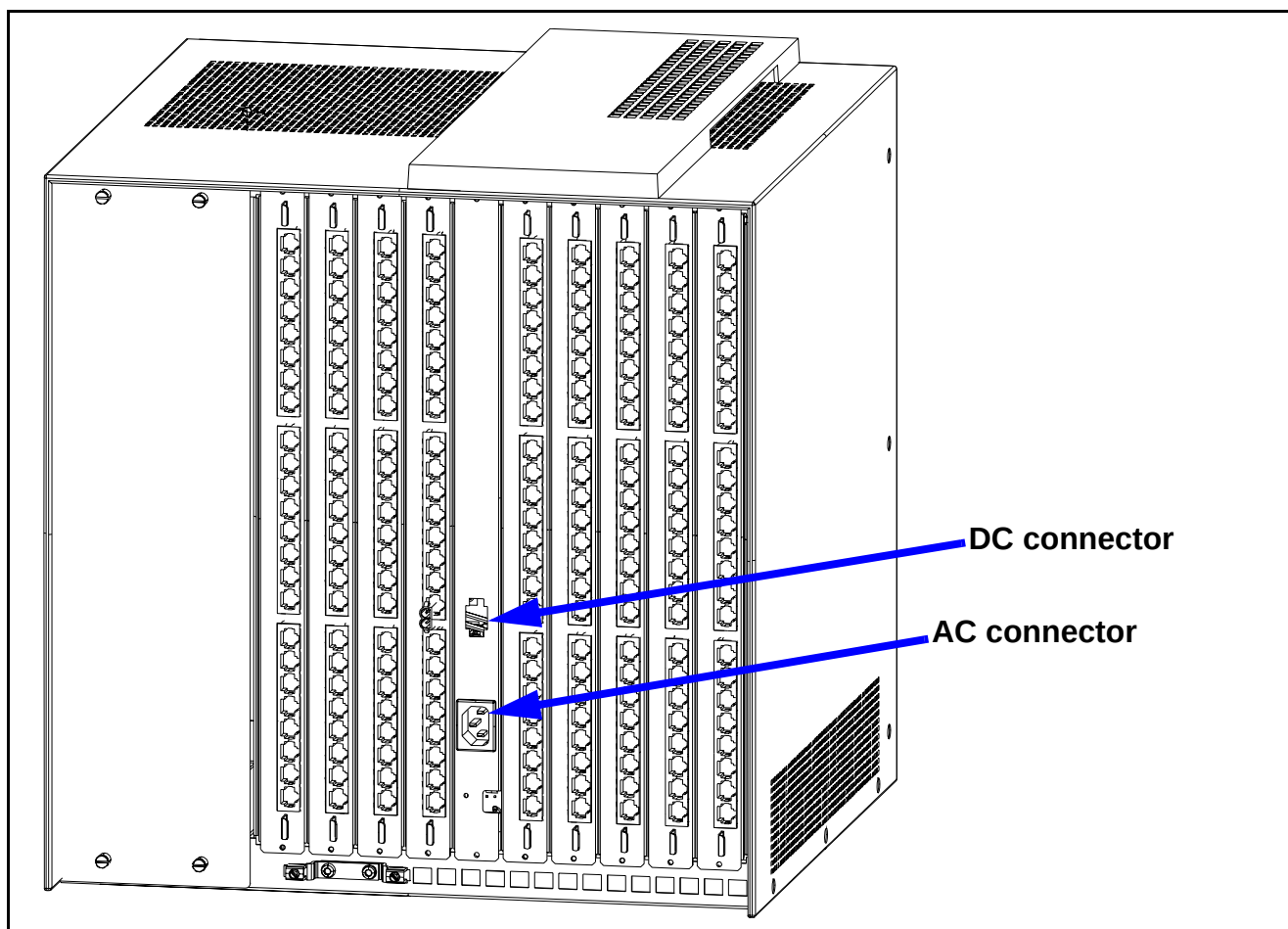
2 x LUNA2-Power supplies
in standard

1 x LUNA2-Power supply
for redundancy

AP 3700-IP Front view

1.4.2 Rear view of the AP 3700-IP populated with patch panels

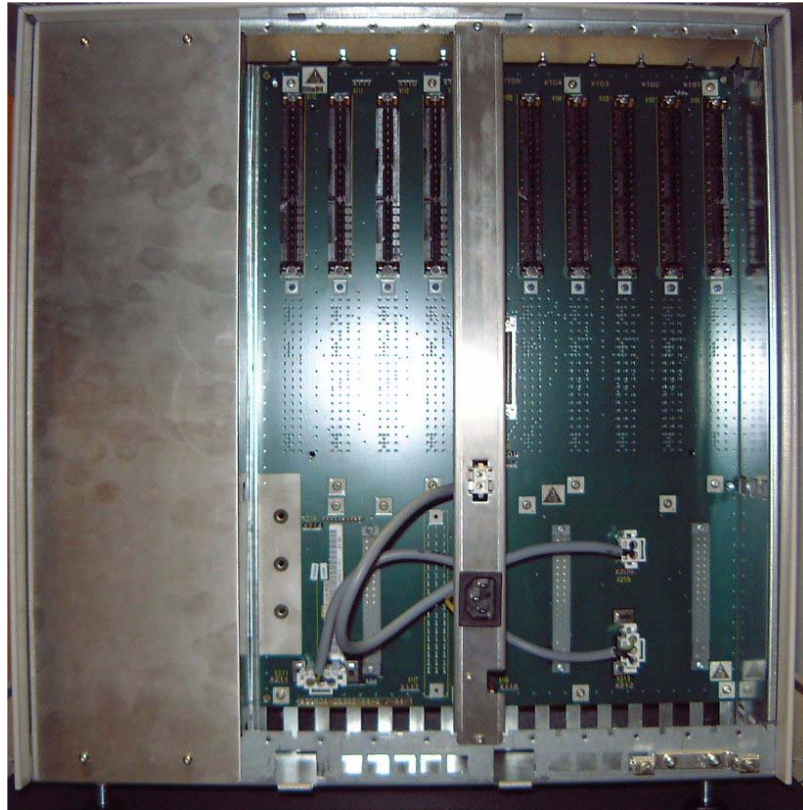
- Slot 10 -7: Patch panels (8, 16 and 24-port RJ-45 connector/CHAMP plug)
- Slot 6: Power supply connection board (DC at the top / AC at the bottom)
- Slot 5 -1: Patch panels (8, 16 and 24-port RJ-45 connector/CHAMP plug)
- Cable clip for earth connection



AP 3700-IP (Rear View) populated with Patch Panels

1.4.3 Shelf Population (Rear) without Patch Panels

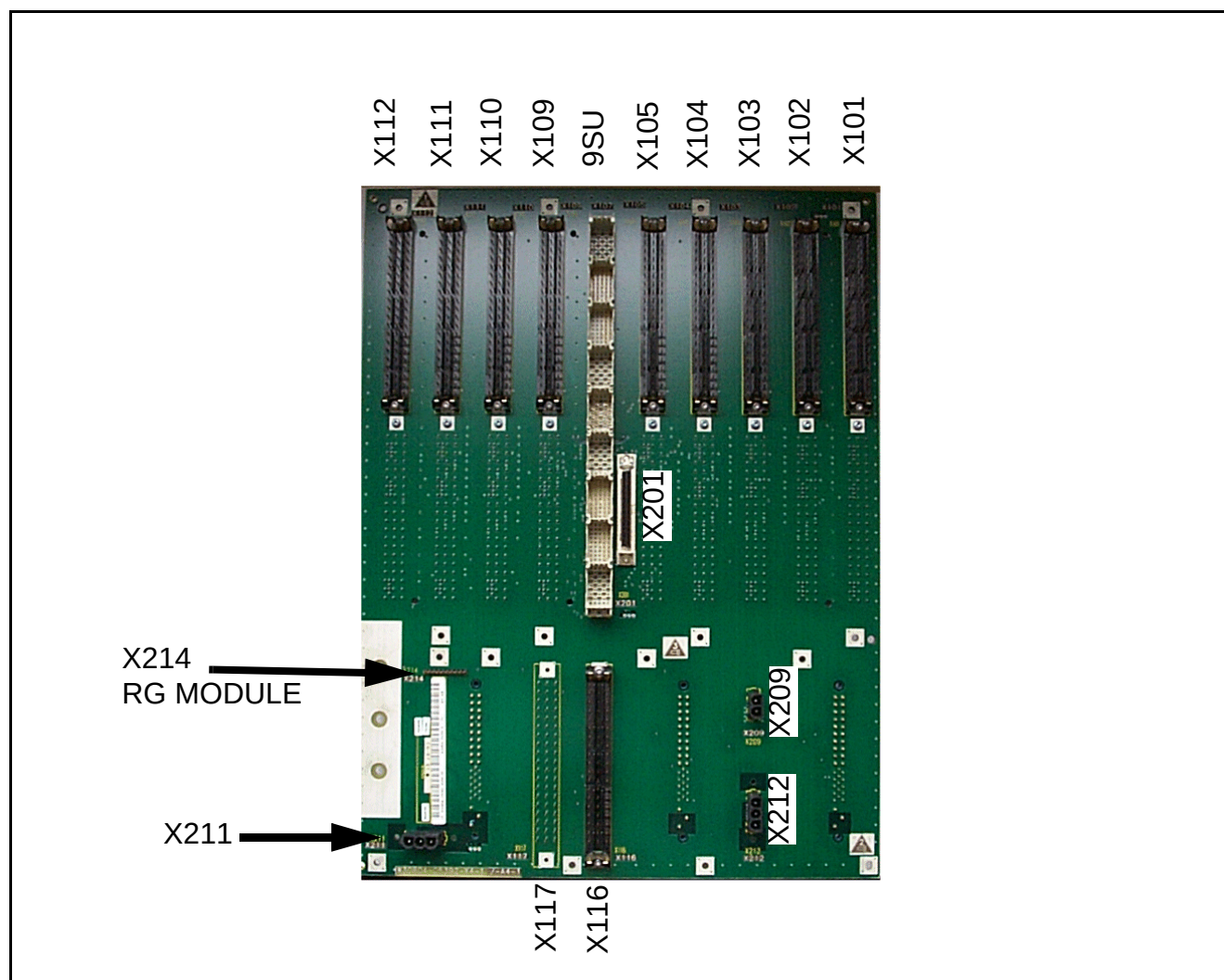
- SIVAPAC cables on the backplane for connection to external patch panels or to a main distribution frame (MDF)
- Power supply connection board (DC at the top/AC at the bottom)
- Cable clip for earth connection



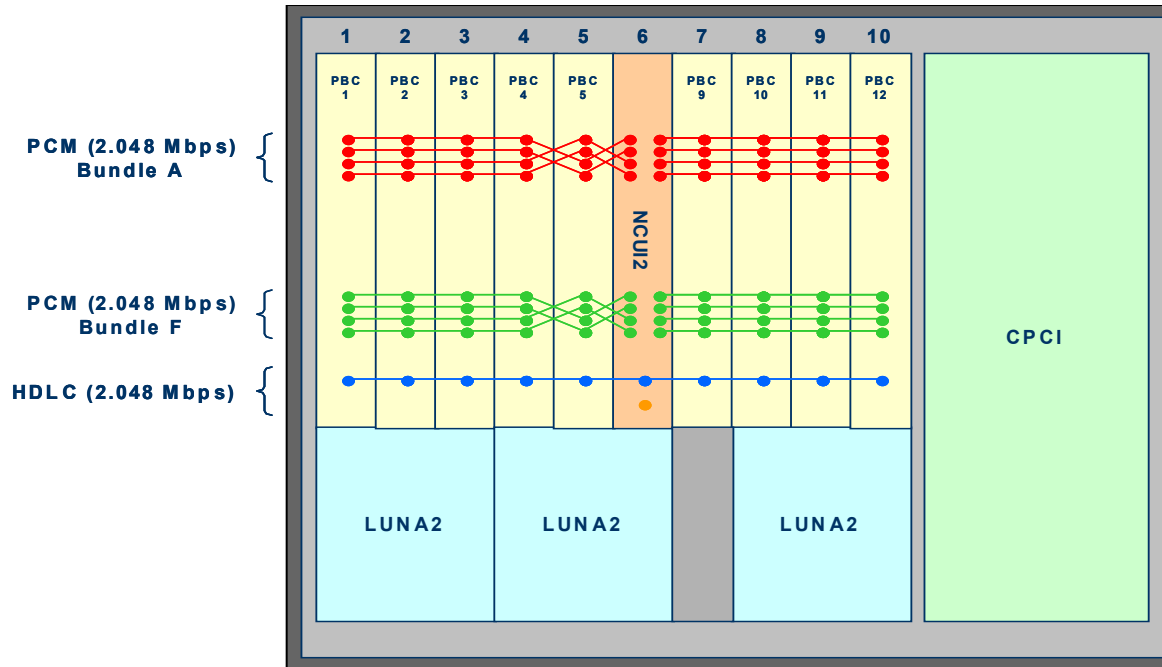
AP 3700-IP (Rear View) without Patch Panels

1.4.4 AP 3700-IP Backplane Connections

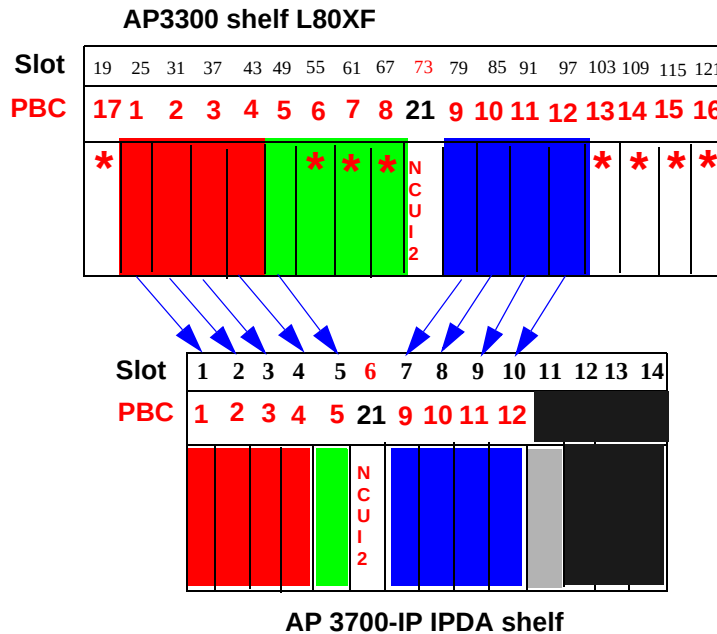
- Connector X101 - X112: SIVAPAC connector for peripheral connections
- Connector 9SU: SIPAC connector for external signalling (e.g. reference clock)
- Connector 116/117: SIVAPAC connector (REALS, ALUM)
- Connector 201: DB68mini (for expansion box)
- Connector 209: DC connection
- Connector 211/212: AC connection
- Connector X214: RG - module



1.4.5 Highway - view



1.4.6 Numbering of the LTU-Slots



- The slots of the AP 3700-IP shelf are counted from 1 up to 10 (necessary for AMO BCSU).
- Slot 6 in the AP 3700-IP shelf is reserved for the NCUI2 board.

1.4.7 AMO-Commands

AMO	Parameter	Sprache/ Language	Beschreibung/ Description
UCSU	AP37009	d	SAPP rahmen fuer ap-ip shelves
		e	SAPP frame for ap-ip shelves

**ADD-UCSU:UNIT=AP,LTG=1,LTU=17,LTPARTNO="Q2305-X5",SRCGRP=17,
FRMTYPE=AP37009,CONNTYPE=APDL/APNW.....;**

Q2305-X5 is the part number of the NCUI2 board.



1.4.8 Control board NCUI2 for AP 3700-IP / AP 3500 / AP 3300

The NCUI2 (NBCS Control Unit IP 2 HiPath HG 3575) board functions as the common control unit for the IPDA and as the gateway unit for a local system connected to a distributed PBX system. The local system could be an LTU shelf or multiple 19" cabinets. Like the LTUCA board in a peripheral shelf, the NCUI2 controls all peripheral boards in the local system and provides access to the 10/100Base-T Fast Ethernet network. The NCUI2 is responsible for central functions, such as DCL-LP, SIU, CONF, MTS, and CG. The board features an interface for up to sixteen peripheral boards in the LTU shelf and an interface to support a 19" system. The board communicates with the common control unit in the HiPath 4000 over the Ethernet network. Within the local system, the NCUI2 switches up to 256 time slots on eight highways at 2.048 Mbps.



Warning

The NCUI2 must **not** be plugged in and unplugged during live operation.

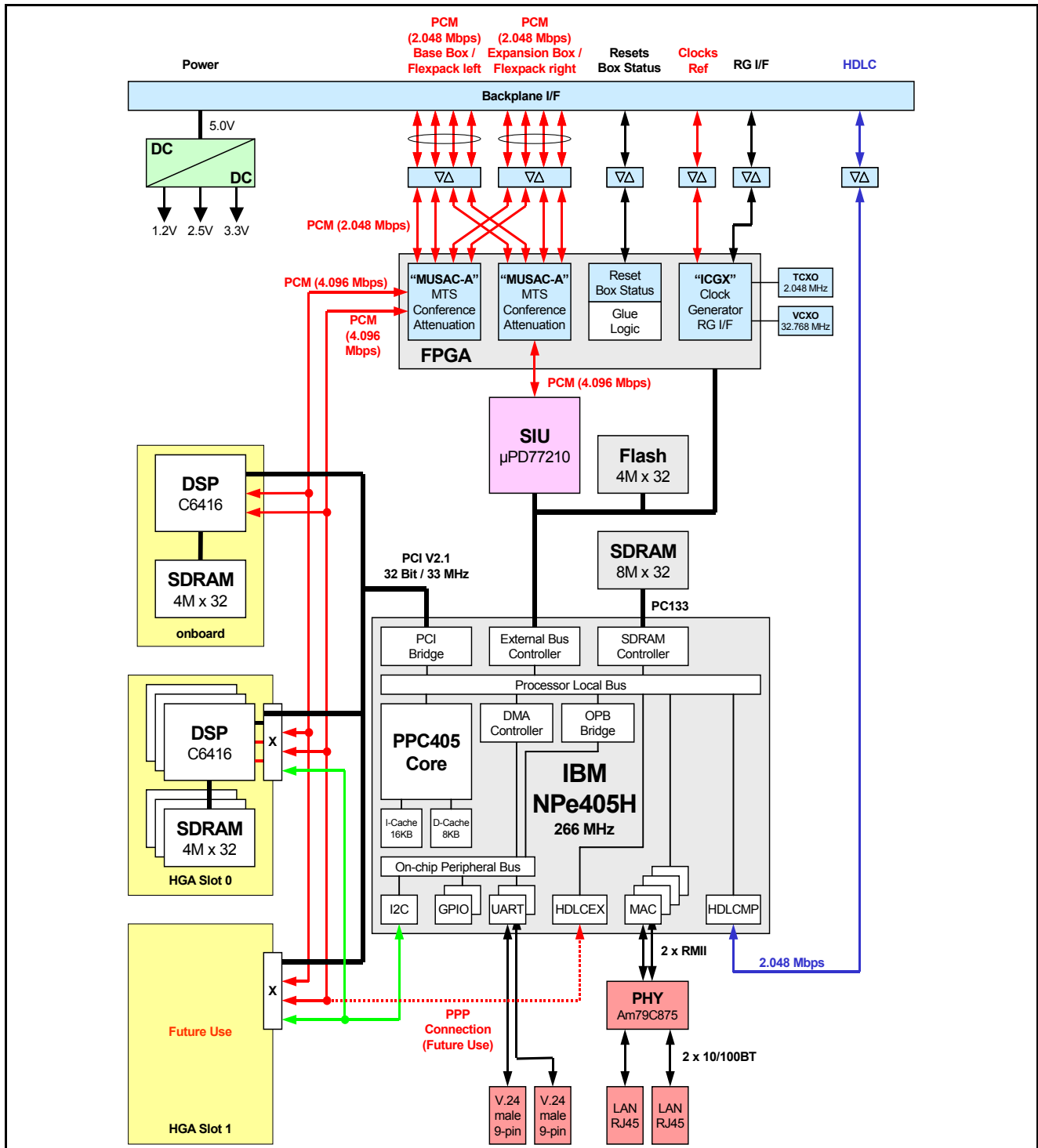
Hardware version

NCUI2	S30810-Q2305-X5
	S30810-Q2305-X10

Mixed configurations with NCUI / NCUI2 and STMI / STMI2

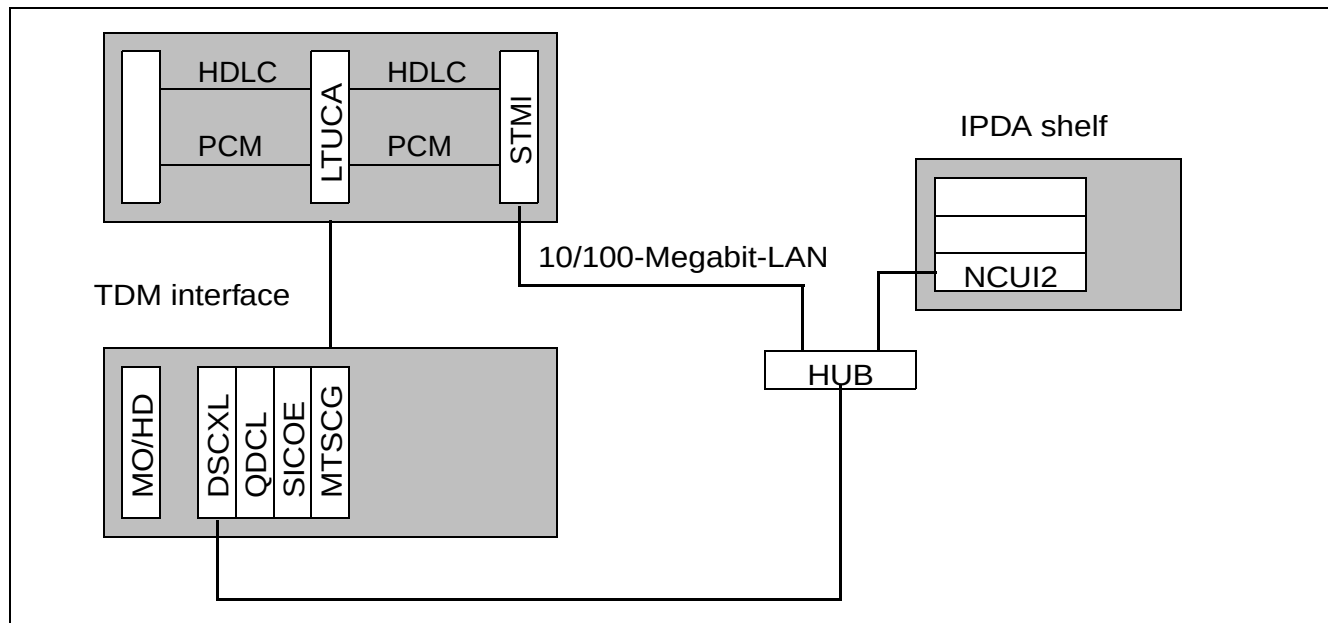
	NCUI	NCUI2
STMI	yes	yes
STMI2	yes	yes

Block diagram of the NCUI2 board



Block diagram NCUI2 board

System diagram



System diagram NCUI2 board

Board versions and Modules

NCUI2 with an **underequipped** PDMX (PMC DSP Module Extended): **S30810-Q2305-X5-** (60-channel version)

NCUI2 with a **fully equipped** PDMX (PMC DSP Module Extended): **S30810-Q2305-X10-** (120-channel version)



DSP (Digital Signal Processor) performance can be increased by adding an additional DSP module with 3 x C6416 DSPs (PDMX = **PMC DSP Module Extended**) to the NCUI2 (HGA slot).

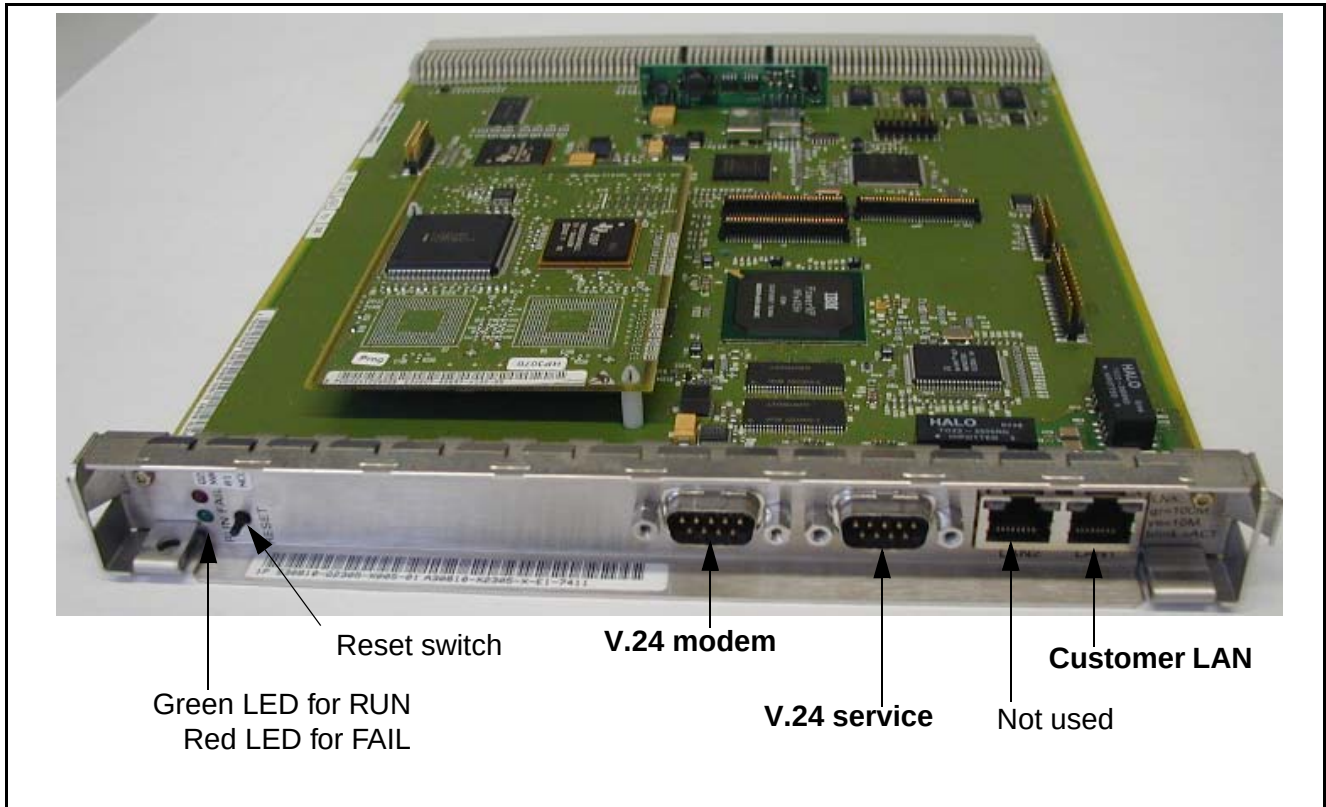
The NCUI2 has two **HiPath Gateway Accelerator (HGA)** slots. One is for the PDMX DSP module and the other is for an optional plug-in module.

PMC = PCI Mezzanine Card

LED Displays and Interfaces

The following LED displays and interfaces are configured on the front of the board for service purposes:

- 2 x V.24 9-pin SUB-D connector (service terminal/modem)
- A green (RUN) and red (FAIL) LED for board status display
- Reset key
- Two LEDs for each LAN interface (integrated in the RJ45 connector)
 - LED1 (LNK): green / yellow
green = 100 Mbps online (link), yellow = 10 Mbps online (link), flashing = active
 - LED2 (FDX): green
on = full-duplex (FDX), off = half-duplex



NCUI2 board front panel

Power supply

The NCUI2 board receives a power supply voltage of +5 V from the backplane. The individual voltages required (+3.3 V, +2.5 V, +1.8 V, +1.5 V, and 1.2 V) are generated by the DC/DC converter on the board.

1.4.9 LUNA 2 Power supply

The AC-to-DC shelf power supply unit (LUNA 2) converts AC power to DC on the HiPath IP Distributed Architecture (IPDA) system. The nominal AC input voltage is 90-264 VAC from the utility outlet that provides power to the cabinet. The DC output voltages are: -5.0 V, +5.1 V, +12 V, -12 V and -48 V. The frequency is between 47 Hertz (Hz) and 63 Hz.



The power supply is used in the AP 3700 and also in the AP 3700-IP !

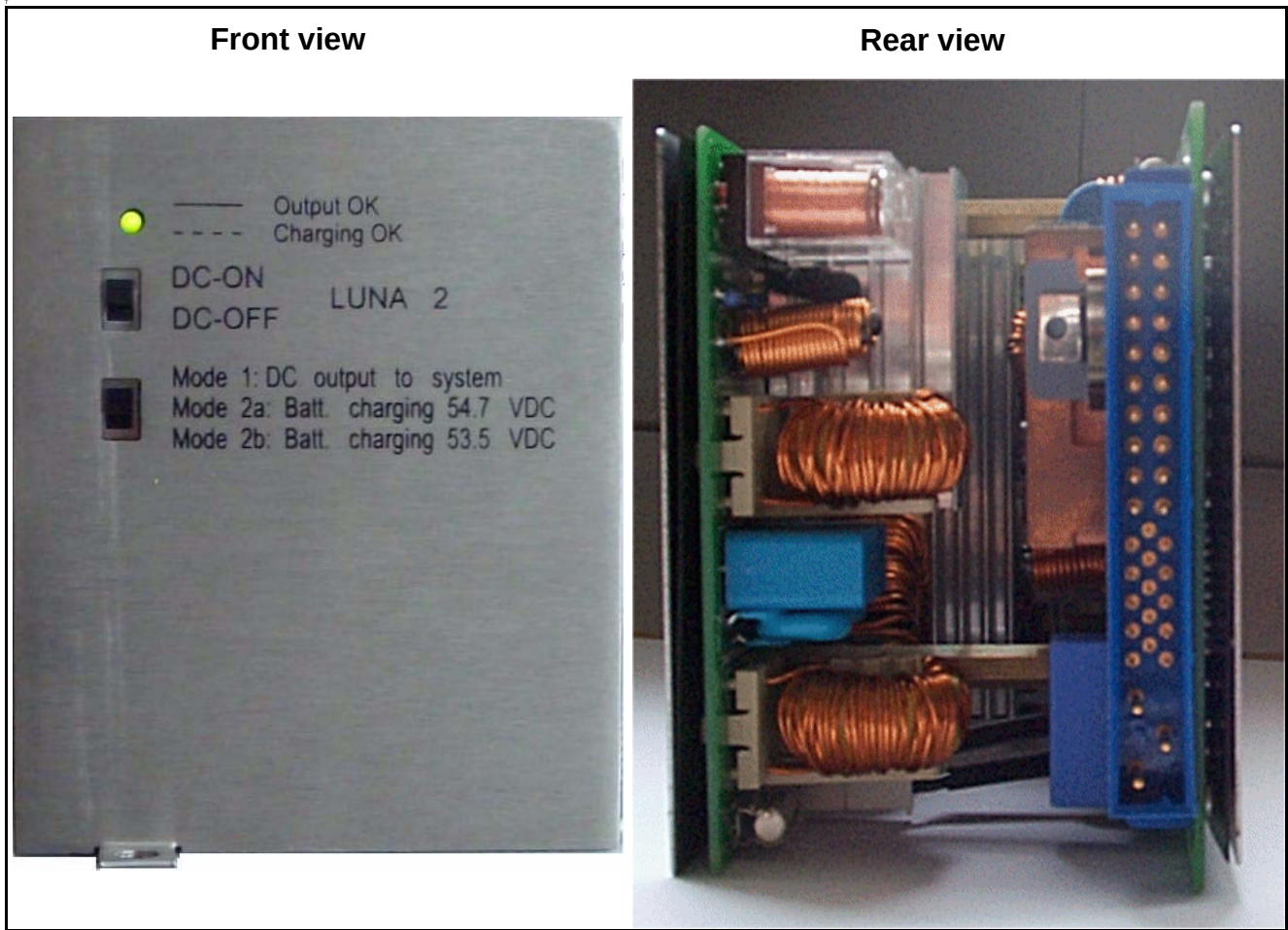
LED Indications and Switches

The front panel features one green LED and two slide switches:

- **Green LED:**
This indicates whether the individual voltages are within tolerance. If the voltage is outside tolerance, the LED goes out. Depending on the operating mode, the LED may illuminate or flash.
- **Switch 1:** On/off power supply switch
- **Switch 2:** Operating mode switch
The power supply unit can be used for supplying power or charging the battery. Set the operating switch to the correct position, one of three (see front panel labelling).

Operating modes:

- **Mode 1:** as a power supply unit (LED illuminated)
- **Mode 2a:** as a battery charger (flashing LED) for maintenance-free dry-cell batteries (charging voltage: 54.7 VDC)
- **Mode 2b:** as a battery charger (flashing LED) for wet-cell batteries requiring low charging voltage (53.5 VDC)



LUNA 2 Front and Rear view

1.5 Specification data of the power supplies

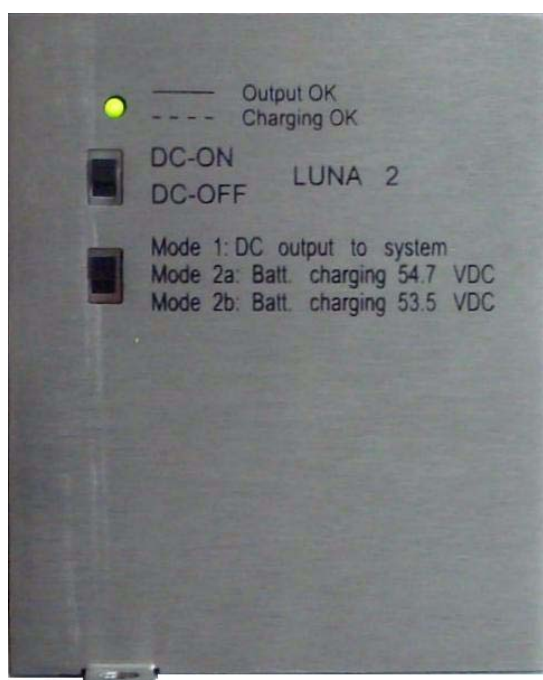
1.5.1 ACPCI S30124-X5166-X



1.5.2 DCPCI S30124-X167-X



1.5.3 Luna 2 S30122-K7686-M1



	ACPCI	DCPCI	LUNA2
	S30124-X5166-X	S30124-X5167-X	S30122-K7686-M1
	CSPCI shelf in CSAPE host in AP 3700 IP	CSPCI shelf in CSAPE host in AP 3700 IP	AP 3700 / AP 3700-IP
Input			
Voltage	90 - 264V AC	36 - 72V DC	90 - 264V AC
Frequency	47 - 63 Hz		
Output			
Output typ./max.	176.3/228.9W	176.3/228.9W	172W
Voltage / current typ. / max.	+3.3V/10.3/12.6A	+3.3V/10.3/12.6A	+5V / 12A
Voltage / current typ. / max.	+5.0V/21.5/30.5A	+5.0V/21.5/30.5A	-5V / 1.8A
Voltage / current typ. / max.	+12V/2.9A	+12V/2.9A	+12V / 1.7A
Voltage / current nominal			-12V / 1.25A
Voltage / current nominal			-55V / 2A
Battery charge voltage			54.7V / 2A 53.5V / 2A

1.5.4 STMI2 board

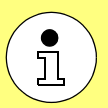
The STMI2 (Subscriber Trunk Module IP HiPath 3570 V2.0) board provides the interface for HiPath 4000 in an IPDA system (IP Distributed Architecture). The board converts the voice data from the PCM highways into IP data for the 10/100Base-T LAN interface.

The STMI2 can also be implemented as HiPath HG3530 (integrated IP gateway for HFA HiPath Feature Access) or as HiPath HG 3550 (integrated IP gateway for IP Trunking).

If the board is used as a HG3530, **240** subscribers can be configured.

The STMI2 board offers the following central and peripheral functions:

- Two network interfaces to 10/100Base-T Fast Ethernet, comparable with HiPath RG2500
- Voice encoding functions (based on DSP), comparable with HiPath RG2500
- Backplane interfaces the same as a typical peripheral board
- V.24 interface for test access (service interface)



The board can plugged in and unplugged during live operation (“Hot Swap”).

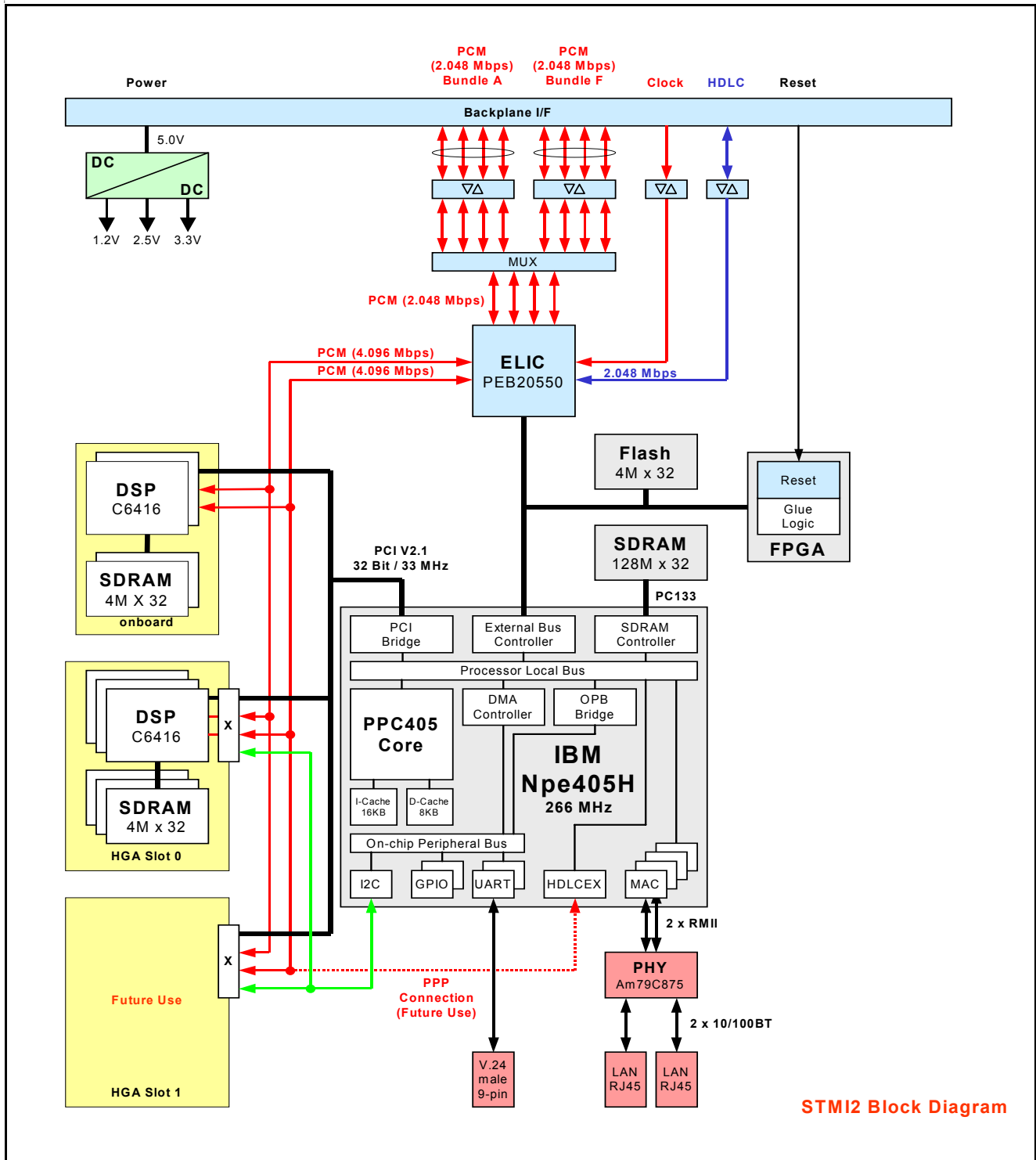
Hardware version

STMI2 S30810-Q2316-X
S30810-Q2316-X10

Function IDs

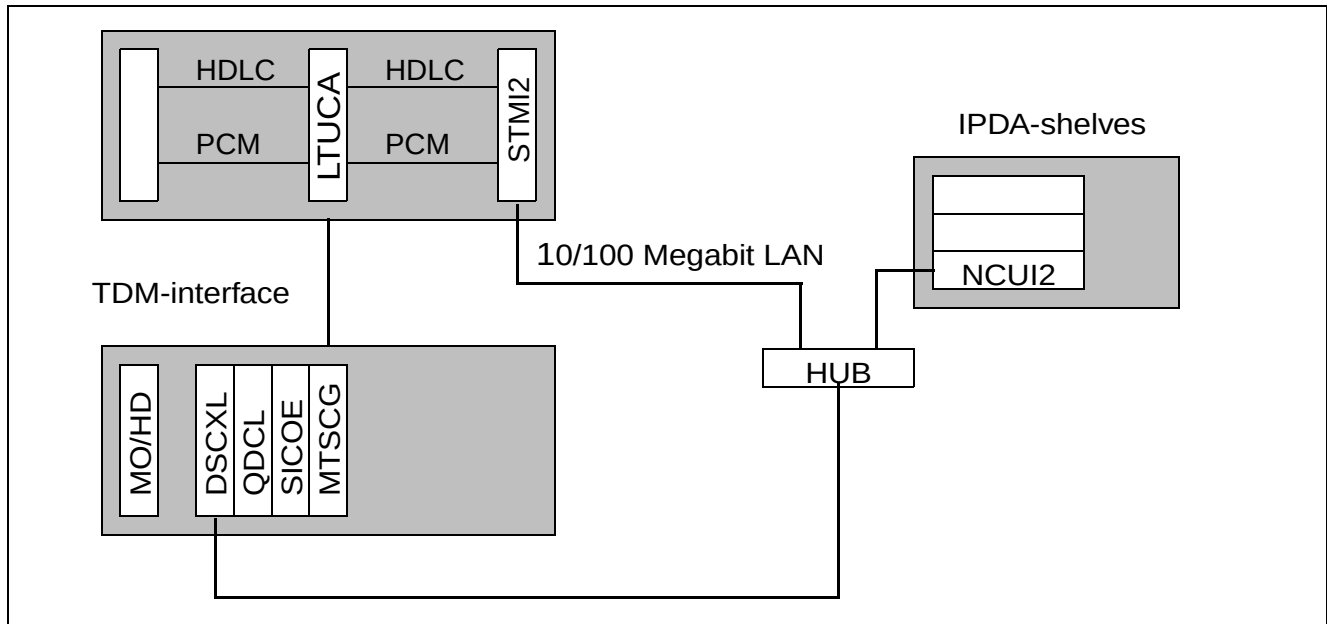
Function ID	used as...
1	HG3570 for the feature IPDA
2	HG3550 for the feature IP-Trunking
3	HG3530 for the feature HFA
5	HG3550 for the feature IP-Trunking and WAML (Mixture); The last 30 B-channels of the board are used for the WAML functionality;

STMI2 Board Block Diagram



STMI2 Block Diagram

STMI2 Board System Diagram



STMI2 board, system diagram

Board versions and Modules

STMI2 **without** PDMX (PMC DSP Module Extended): **S30810-Q2316-X-*** (60-channel version)

STMI2 **with** an **underequipped** PDMX (PMC DSP Module Extended): **S30810-Q2316-X10-*** (120-channel version)



DSP (Digital Signal Processor) performance can be increased by adding an additional DSP module with 3 x C6416 DSPs (PDMX = **PMC DSP Module Extended**) to the STMI2 (HGA slot).

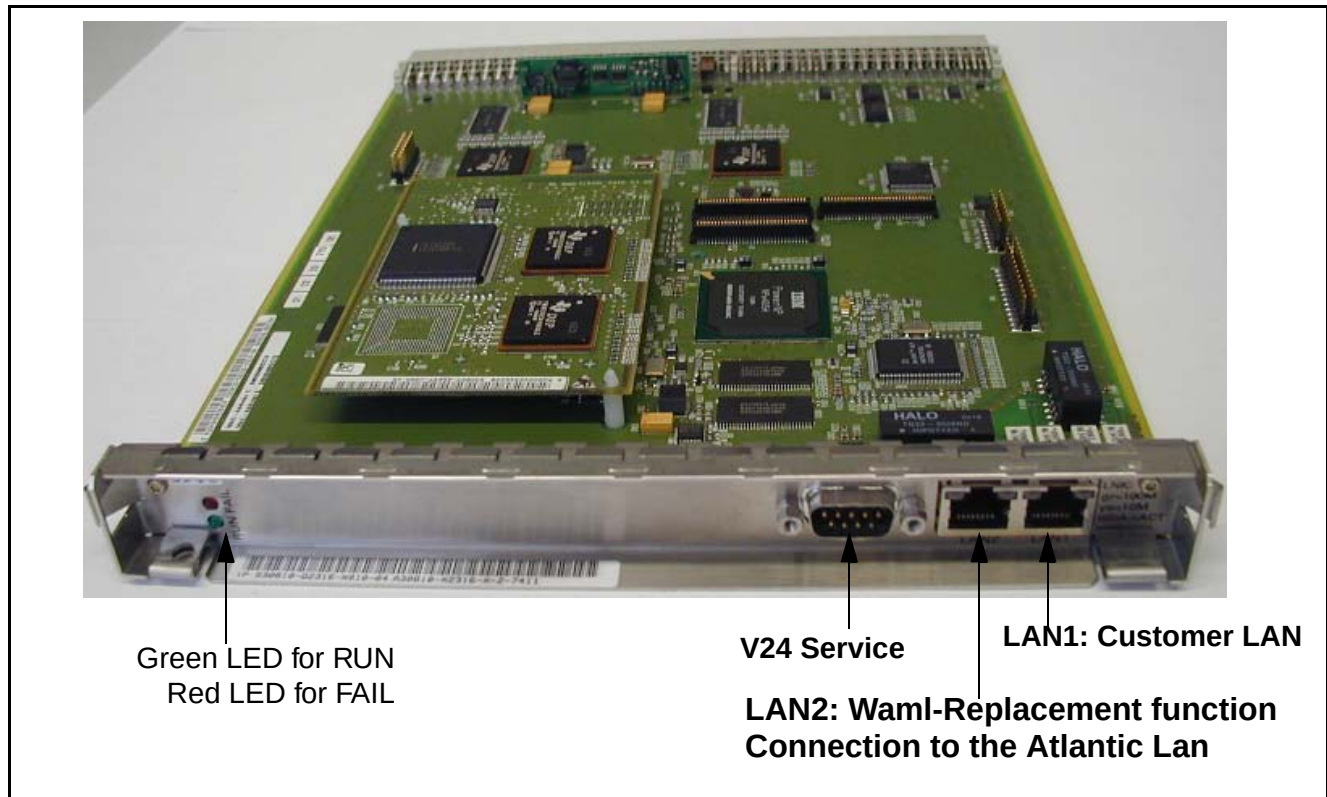
The STMI2 has two **HiPath Gateway Accelerator (HGA)** slots. One is for the PDMX DSP module and the other is for an optional plug-in module.

PMC = PCI Mezzanine Card

LED Displays and Interfaces

The following LED displays and interfaces are configured on the front of the board for service purposes:

- 1x V.24 9-pin SUB-D connector (for test purposes)
- A green (RUN) and red (FAIL) LED for board status display
- Two LEDs for each LAN interface (integrated in the RJ45 connector)
 - LED1 (LNK): green/yellow
green = 100 Mbps online (link), yellow = 10 Mbps online (link), flashing = active
 - LED2 (FDX): green
on = full-duplex (FDX), off = half-duplex



STM12 board, front panel

Power supply

The STM12 board receives a power supply voltage of +5 V from the backplane. The individual voltages required (+3.3 V, +2.5 V, and 1.2 V) are generated by the DC/DC converter on the board. The board is automatically reset if one of the voltages falls below the critical value.

1.6 AMO CONSY

New cabinet and frame types are provided for the new hardware in the AMO CONSY (DISPLAY-CONSY:OPT=CABTYPE or DISPLAY-CONSY:OPT=FRAMETYPE;):

- **CABTYPE**

- | | | |
|----|----------|---------------|
| 1. | CSCPCI | New control |
| 2. | AP37009 | IP_AP3700-9 |
| 3. | AP370013 | LTU_AP3700-13 |

- **FRAMETYPE**

- | | | |
|----|----------|---------------------------|
| 1. | CSCPCID | Duplex-control unit |
| 2. | CSCPCISD | Simplex - Dual (only LAB) |
| 3. | CSCPCISM | Simplex - Mono |
| 4. | AP37009 | IP_AP3700-9 |
| 5. | AP370013 | LTU_AP3700-13 |

Example: *Control unit cPCI mono with one LTU AP3700-13 and one IP-Access Point AP3700-9:*

```
ADD-CONSY:ADDR="P101",OPT=CAB,CAB="CSCPCI ";
ADD-CONSY:ADDR="P101",OPT=FRAME,SHELFNO=1,FRAME="CSCPCISM",
PID="BPA"&"A1";
```

```
ADD-CONSY:ADDR="P102",OPT=CAB,CAB="AP370013";
ADD-CONSY:ADDR="P102",OPT=FRAME,SHELFNO=1,FRAME="AP370013",LTU=1;
```

```
ADD-CONSY:ADDR="P117",OPT=CAB,CAB="AP37009";
ADD-CONSY:ADDR="P117",OPT=FRAME,SHELFNO=1,FRAME="AP37009",LTU=17;
```

DISPLAY-CONSY:OPT=CAB;

+-----+						
CAB: CSCPCI		ADDR: P101				
+-----+						
SHELFNO	FRAME	PID1	PID2	PID3	LTU	
+-----+						
1	CSCPCISM	BPA	A1			
+-----+						
+-----+						
CAB: AP370013		ADDR: P102				
+-----+						
SHELFNO	FRAME	PID1	PID2	PID3	LTU	
+-----+						
1	AP370013				1	
+-----+						
+-----+						
CAB: AP37009		ADDR: P117				
+-----+						
SHELFNO	FRAME	PID1	PID2	PID3	LTU	
+-----+						
1	AP37009				17	
+-----+						

2 Hardware supported and not supported

2.1 Newly marketed Periphery-Boards in HiPath 4000

- **Rules for Support in IPDA-Shelf AP 3300**
 - New or supported boards
 - No central boards
- **Rules for Support in IPDA-Box AP 3500/3505 (19")**
 - Only SIPAC-boards
 - Only new marketed boards
 - Only boards up to 30mm wide
 - Limited number of boards with high power consumption, E.G. SLC16
 - Only boards without front connectors
 - No central boards
- **Categories for IPDA-Support**

Y = Certified and released for IPDA

Y* = In principle usable but not certified. Certification on enquiry.

N = Not used in IPDA

Tabelle 1: New modules from V2.0

Abbreviation	Part number	AP Shelf 3300	AP 3500/ 3501	AP 3700 / 3700-IP	Infos
DIU2U (TMD)	S30810-Q2216-X	Y	Y	Y	USA
LTUCA	S30810-Q2266-X	Y	N	Y	
NCUI2	S30810-Q2305-X	Y	Y	Y	
STMI2	S30810-Q2306-X/10	Y	Y	Y	
TMDNH	S30810-Q2192-X			Y	USA

Tabelle 2: New modules from V1.0

Abbreviation	Part number	AP Shelf 3300	AP 3500/ 3501	AP 3700 / 3700-IP	Infos
CDG	S30810-Q6401-X	Y	N		
DIUN2	S30810-Q2196-X	Y	Y	Y	
MUXY	S30810-Q2812-X	Y*	Y*		
PBXXX	S30810-Q6401-X	Y	N		
RG (MWI)	S30810-Q2468-X	Y	N	Y	USA
RGKOR	S30810-Q2468-X100	Y	N		
RGMOD	S30122-K5929-X	Y	Y		
SIUX2	S30810-Q2187	Y	Y	Y	
SLC16	S30810-Q2151-X300	N	N	N	
SLC24	S30810-Q2193-X200	Y	Y	Y	
SLCSM	S30807-Q6194-X	Y	Y	Y	
SLMA	S30810-Q2157-X	Y	Y		
SLMA24	S30810-Q2246-X	Y	Y	Y	
SLMA3	S30810-Q2191-X	Y	Y		
SLMAB	S30810-Q2184-X	Y	Y	Y	BRA
SLMAC	S30810-Q2191-C	Y	Y		
SLMAR	S30810-Q2480-X	Y	Y	Y	
SLMO (24)	S30810-Q2168-X	Y	Y	Y	
SLMOP	S30810-Q2169-X100	Y	Y	Y	
SLMQ	S30810-Q2153-X100	Y	N		
SLMQ3	S30810-Q2479-X	Y	Y		USA
STHC	S30810-Q2169-X	Y	Y	Y	

Tabelle 2: New modules from V1.0

STMA	S30810-Q2160-X7/100	Y*	N		
STMD2	S30810-Q2163-X	Y	Y	Y	
STMD2	S30810-Q2163-X100	Y	Y	Y	
STMI	S30810-Q2303-X/10/20	N	N	N/Y	
STMVI	S30810-Q2815-X	Y	Y	Y	VINET
TM2LP	S30810-Q2159-X100/110/120/ 130/140/150/160/170/180/190/200	Y	Y	N/Y	
TM3WI	S30810-Q2477-X	Y	N	Y	
TM3WO	S30810-Q2476-X	Y	N	Y	
TMC16P	S30810-Q2485-X	Y	Y	Y	USA
TMDID	S30810-Q2452-X	Y	N	N/Y	USA
TMDNH	S30810-Q2192-X	Y	Y	Y	USA
TMEMUS	S30810-Q2469-X	Y	N	N/Y	USs
TMLR	S30810-Q2064-X100	N	N		
TMLRB	S30810-Q2186-X100	N	N		
TMLRB	S30810-Q2286-X	Y*	Y*		
TMOM2	S30810-Q2214-X100	Y*	N		
TMSFP	S30810-Q2147-X300	Y	N		
TMSFP	S30810-Q2147-X	Y	N		
TMWE2	S30810-Q2292-X100	Y	N	N/Y	
TRIMY	S30810-Q2817-X	Y	N	Y	
WAML	S30810-Q2205-X	Y	N	N/Y	

2.2 Peripheral boards supported in HiPath 4000

Tabelle 3: V2.0

Abbreviation	Part number	AP Shelf 3300	AP 3500/ 3501	AP 3700 / 3700-IP	Infos
CDG	S30810-Q2218-X	Y	N		
CSG	S30810-Q6400-X999	Y*	N		
DIUC	S30810-Q2185-X	Y	N		
DIUN4	S30810-Q2195-X	Y	N		
DIUS2	S30810-Q2096-X200	Y	N		
PNE	S30810-Q6400-X	Y*	N		
RGE	S30810-Q2258-X	Y	N	N/Y	
RGMOD	S30807-Q6141-X	Y	Y	Y	
SC	S30810-Q6402-X/100	N	N		
SIUX	S30810-Q2233-X	Y	N		
SLC16	S30810-Q2151-X200	Y*	N		
SLMA	S30810-Q2041-X	Y	N		
SLMA	S30810-Q2141-X	Y	N		
SLMA24	S30810-Q2146-X	Y	N	Y	US only
SLMB	S30810-Q2150-X/100	---	----	----	Softw. Trading
SLMO (16)	S30810-Q2144-X	Y	N		
SLMO (16)	S30810-Q2164-X	Y	N		
SLMO (24)	S30810-Q2158-X	Y	N		
SLMQ	S30810-Q2153-X	N	N		
SLMS	S30810-Q2117-X	Y	N	Y	
SLOP2	S30810-Q2180-X	Y	N		

Tabelle 3: V2.0

STHC2	S30810-Q2177-X	Y	Y		
STMD	S30810-Q2174-X	Y	N		
TMACH	S30810-Q9556-X	N	N		
TMAU	S30810-Q2066-X	Y*	N		
TMBD	S30810-Q2025-X300	N	N		
TMBLN	S30810-Q2138-X	Y*	N		
TMC16	S30810-Q2475-X	Y*	N		US only
TMCOW	S30810-Q2288-X/10/20/30/40/50/ 60/100/110/120/130/220/300/310	Y*	N		
TMEM	S30810-Q2012-X100	Y*	N		
TMEMW	S30810-Q2092-X/100/200	Y*	N		
TMLBL	S30810-Q2123-X/100	Y*	N		
TMLSL	S30810-Q2073-X1	N	N		
TMOM2	S30810-Q2214-X	Y*	N		
VCM (7)	S30810-Q2235-X100	Y*	Y*		
VCM (15)	S30810-Q2235-X	Y*	Y*		

2.3 Peripheral Boards No longer supported in HiPath 4000

Tabelle 4:

DIUC	S30810-Q2085-X2	
PSIO	S30810-Q2139-X	
TMACH	S30810-Q9556-X100	
TMBCT	S30810-Q2121-X	
TMBCT	S30810-Q2121-X100	

